THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Rules and Suggestions in Husbandry.

We shall now proceed to give, agreeable to the promise in our last number, some rules and suggestions in husbandry, of general application, to enable farmers, and particularly novices in the art, to judge of the character and qualities of their soil—of its adaptation to particular crops—of the causes of its deterioration—and of the means of perpetuating its fertility; or, if worn out or impoverished, of restoring it to its pristine vigor. The facts and suggestions which we shall give are the results of our reading and our practice; and though they may not in all cases prove to be sound, we think that in the main they will be found to be so.

1. The essential elements of a good soil, are sand, clay, lime, and vegetable or organic remains. Magnesia, iron, and other matters, are often found blended with the preceding; but, in general, they are not considered as exercising a great influence on its fertility, except they exist in more than ordinary proportions.

2. The presence of sand, clay, and vegetable matter, in a soil, is deemed essential to all crops; and lime, in some of its forms, is considered indispensable to many crops, and particularly to wheat.

3. The presence of sand and clay is readily detected by the experienced eye; that of vegetable matter by the consistency and colour of the soil; and that of carbonate of lime, by drying a portion of soil, and pouring upon it some acid, having a stronger affinity for the base than the carbonic acid, as muriatic acid, or even strong vinegar—if it contains lime, effervescence will ensue—the proportion may be ascertained by the modes of analysis we have published.

4. Sand is the most essential in the earthy ingredients of a soil, and most preponderates; though where it exceeds eighty per cent, the soil is virtually barren. Clay is next in proportion; but where it greatly preponderates, the soil becomes stubborn, is hard to be worked, and more or less unproductive. Lime exists in the smallest proportion; and from two to ten per cent of the upper or tillable stratum is deemed sufficient for all the purposes of profitable husbandry. When in excess, it induces barrenness. A calcareous soil is considered conducive to the health of the neighborhood. Organic matter, that is, vegetable or animal, is indispensable in a soil. It is the food of plants. Yet even this is often found in excess, as in peat earth, and is often infertile till mixed with earthy ingredients, or brought in contact with fermenting materials.

5. When an excess is discovered to exist of sand, clay, lime or vegetable matter, the fault may be remedied by an admixture of the deficient element or elements. When one of the elements is found wanting, it may be supplied by art. Thus a load of clay upon an arid sand,—or load of sand upon a stubborn clay,—or a few bushels of lime, or marl, or ashes, upon a soil deficient in calcareous earth, are often of more ultimate service than a load of barn yard dung. But,

6. Both dung and lime are consumed by the growing crops; and if the crops are carried off, the land must be periodically replenished with these, or it will often become deficient in these material elements of fertility.

7. The sand and clay of the soil, may be likened, in their offices, to the stomach of the animal; the lime and salts to the gastric juices which assist to dissolve the food in the animal stomach—and to the condiments, as salt, pepper, &c. which we employ to stimulate and aid the organs and process of digestion;—and the organic matter in the soil, to the food itself, which feeds and nourishes the animal system.

8. If the crops grown upon a soil are permitted to rot upon, and return to it again, its fertility is not impaired, but improved. Nothing is lost, but something gained, from the fertilizing influence of the atmosphere. But when all the crop is carried off, and nothing returned, deterioration must take place—the vegetable food must undergo a continued diminution. This is a plain exposition of the cause of lands *wearing out*; and at the same time it explains the necessity of applying manures to keep up their fertility.

9. All the elements of a good soil being present, its fertility, and consequent profit, will in a measure depend upon its exemption from an excess of water, which, like fire, is a good servant, but a bad master. This excess may arise from spouts and springs bursting up from below, or from surface waters, where the ground is level, or nearly so, settling and reposing upon a tenacious subsoil, or from waters flowing from higher grounds. Hence the importance of draining. We do not know of any farm crop which thrives well upon a soil that is habitually wet, either upon its surface, or within the natural range of its roots. Water-meadows and rice profit by periodical floodings; but they are injured by habitual wetness.

10. Fertility depends much, also, upon the quality and properties of the subsoil. If this is defective, or comes too near the surface, its faults may be corrected, and the tilth deepened, by bringing it up, in small portions at a time, with the plough, to the ameliorating influence of the atmosphere, and by blending it with the upper stratum.

11. If a soil, under proper management, does not return good crops, or if the crops are found annually to diminish, it is a sure indication that there is a deficiency in one of the primary elements of a good soil, that the subsoil has a malign influence, or that there is an excess of water. It is the province of the manager to search out the cause of the evil, and to apply the proper remedy, be it lime, manure, drainage or a deeper tilth.

12. Grain crops are the greatest exhausters of the fertility of soils, on account of their narrow system of leaves, and the great quantity of nutriment they extract from it to mature their seeds. The remark extends to the narrow-leaved grasses, converted into hay, when they are permitted to ripen their seeds in the field.

13. Indian corn, tobacco and beans may be embraced in the second class of exhausting crops; for although they have broad leaves, and are supposed to derive much of their nourishment from the atmosphere, they are nevertheless gross feeders, and are bulky crops, and leave very little upon the soil to compensate for what they take from it. But great economy in feeding these crops may be effected by applying to them the long manure of the yard and stables, instead of summer yarding it, as many farmers are wont to do. These crops will feed upon what is otherwise lost in the yard, the gaseous matters. These afford exactly the food that the crops named want, and at the very time they want it.

14. Roots come next in the order of exhausting crops; but they compensate, in a measure, by the ameliorating influence they have upon the soil—in dividing, pulverizing and freeing it from weeds—by their roots and the culture they demand.

15. Green crops, that is, clover, buckwheat, rye, oats, &c. *ploughed under as food for plants*, are enriching crops, and powerful auxiliaries to the fold-yard, but they are too seldom resorted to for this purpose.

16. Depasturing with cattle, and particularly with sheep, enriches a soil. According to Van Thaer, it adds 20 per cent annually to the fertility of an ordinary soil, probably for a limited period. This results from the fact, that the crop is returned to the soil, in the droppings and urine of the animals which graze it.

17. Lime and clay are essential in a wheat soil. Indian corn delights in a rich, dry sand loam. Turnips excel on dry sandy soils. Rye is impatient of wet. Barley does best on a clay loam, as do beets, carrots and peas. Oats and potatoes find a congenial berth in cool moist grounds, though for the latter the surface stratum should be light, or mellow. Of the grasses, the tap-rooted, as clover, lucern, &c. require a deep soil, permeable to their long roots, and free from water; the fibrous-rooted, as the tall-oat, orchard, &c. thrive upon soils that are shallower; and the rough-stalked meadow, red-top, bent, and some of the festuca family are congenial to, and often natural in, moist or swampy grounds. The timothy, or meadow cat's-tail, the main dependence for winter forage, in the northern states, adapts its roots, it is said, to its location—being fibrous-rooted upon dry, and bulbous-rooted upon moist grounds—and therefore adapted to any situation.

18. The natural fertility of a farm cannot be kept up, or increased, where arable and mixed husbandry prevail, from the resources of the farm stock, without resort to an alternation, or change of crops. Although the diminution of fertility may by imperceptible, in some extraordinary cases—and although some soils seem naturally and peculiarly adapted to certain crops,—yet where the same crop is grown on one piece of ground in successive years, deterioration as certainly goes on as the sun shines by day. Whether, according to the modern theory of certain European philosophers, and men of high repute, the excrementitious matter thrown into the soil by a growing crop is poisonous to its species;—or whether, as we mantain, each species requires and exhausts, or partially exhausts, a specific food in the soil, suited to its particular wants,—we will not now stop to inquire; but it is a fact established by general experience, that an annual change of crops upon a field, while under tillage, tends very much to economise is fertility, and to increase the profits of the labor bestowed upon it. Hence,

19. It has been laid down as a sound rule in farming, that two white, or grain, or culmiferous crops, should not be made to succeed each other in the same field; but that each of these should be alternated with, or followed by, a green, a grass, a root or a leguminous crop

20. Where the soil of a farm will admit of it, a good course is to alternate, 1, roots or Indian corn, with long manure, upon the sod; 2, grain, with grass seeds; 3, grass for two years. The poorer the soil, the oftener should it be returned to grass, particularly to clover and pasture.

21. Geologists refer to three distinct formations as constituting the crust of the earth—the *primitive*, containing little or no lime, or organic remains: the *transition*, containing lime and organic remains;—and the *secondary*, abounding extensively in both of these elements of fertility. Their natural relative *fertility* is in the reverse order in which they are named, the secondary being best, and embracing most of the great basin of the Mississippi and the country drained by its tributary streams. We say nothing of alluvial formations, made by the ocean and streams. These partake of the character of the country from which they are brought, and are more or less fertile, according to the fertility of the districts from which their soil is derived, and the force of the currents by which the deposites have been made—a rapid current leaving only the coarser or heavier materials, while the lighter and richer matters do not subside until the current becomes slow and less agitated. A sluggish current, therefore, deposites the richest soil.

22. The three great formations which we have mentioned, possess, it is well known, characteristics different from each other. They grow, naturally, many plants peculiar to each, and they are adapted to different branches of husbandry, or to different farm crops. The primitive will not generally grow good wheat; but is suited to grass, oats, potatoes, &c. The transition is adapted to natural grasses, and to most of the arable crops, particularly to the cereal class; and the secondary to the cultivated grasses, to roots, and particularly to wheat.*

* An able writer in the Edinburgh Quarterly Journal of Agriculture, in reference to these formations, terms the primitive, which it seems comprises the most elevated lands in Scotland, the region of heath and coarse herbage; the transition, the natural region of the grasses; and the secondary the region of cultivated grasses, and particularly adapted to arable and alternate husbandry. He assigns to each a particular and distinct breed of cattle. To the first, or higher region, a thick haired, small hardy breed; to the second or middle region, those of larger size; and to the third, or lower region,

23. There are other circumstances, in regard to the location of a farm, which demand the consideration of the master, which refer to latitude and elevation. Plants have their natural zone, or climate, beyond which they do not grow, or thrive but imperfectly. There is a difference in every degree, or seventy miles, of latitude, upon tide-water, of five or six days, in the forwardness of natural vegetation in the spring, and nearly a like difference in the blighting indications of autumn. But what is of equal importance, but less generally regarded, is the difference in climate produced by altitude. Three hundred feet of elevation is considered equal to one degree of latitude, in its influence upon temperature. Hence it does not follow, that because a crop will thrive and ripen in a given latitude upon tide-water, it will thrive and ripen well in the same latitude at a higher elevation. On the contrary, to be better understood, we say, that, other things being alike, the climate on tide-water, in latitude 42°, is similar to that of a place three hundred feet elevated above tide-water in latitude 41°, or of a place nine hundred feet above tide-water in latitude 39°; so that the table land of Mexico, in latitude 16°, at an elevation of seven thousand and eight hundred feet above the ocean, should possess about the same mean temperature, and produce the same natural and artificial growth, as Kingston, upon the Hudson, though the extremes, both of heat and cold, are probably greater at the northern than they are at the southern point.* These data are assumed from recollection, and may not be precisely correct.

24. The means of preserving, and of augmenting, the fertility of the soil, are sufficiently indicated in the preceding suggestions. They consist mainly in manuring, draining, the admixture of earthy materials, and the alternation of crops.

25. Stable and fold-yard dung is most profitably applied in an unfermented, or partially fermented state, and to hoed and autumn-ripening crops. Fermentation diminishes the fertilizing properties of manure. If this fermentation takes place in the soil, the gases, the volatile portion which first escapes from the putrifying mass, are retained in the mould, and serve to feed the crop. If fermentation takes place in the yard, or upon the surface, the gases are wasted, and the dung undergoes further loss from the rains which ordinarily leach it. Long manure should be spread broadcast, and well buried by the plough.

26. Short manure, or that which has undergone fermentation, is most beneficial when harrowed in, upon arable lands, or spread upon the surface of grass grounds.

27. Old meadows may be kept in a productive state, in ordinary cases, by a triennial top-dressing with manure or compost; or may be renovated, and restored to a productive state, by the modes recommended in the first number of our present volume.

28. Composts are economical, when made to absorb fertilizing liquids which would otherwise be wasted—or to decompose inert vegetable matter, as peat earth, &c.

27. Lime, gypsum, marl and ashes are powerful auxiliaries, when applied to proper soils, or suitable crops. Observation and experience will be the best guides in their application. They should all be applied to the surface, or but superficially covered.

30. All vegetable and animal matters, constitute the food of plants, when they are rendered soluble, or capable of being dissolved in the water of the soil.

31. Bone dust, horn-shavings, poudrette, woollen rags, urine, and animal carbon, or burnt bones, are concentrated manures, and should be used sparingly and with great care, upon or near the surface of the soil. Pigeon and hen's dung partake much of the character of the preceding, and require precaution in their use. We think the best mode of applying the two first named, is to mix ashes with them, or long manure, just before they are put upon the soil, whereby they are brought speedily into a state of fermentation and decomposition.

32. The best guards against drought, are keeping the soil deep, rich, clean, and mellow on the surface.

33. The more cattle that are well kept upon a farm, the more manure; the more manure there is applied, the greater the product and the profit, and the greater the means of sustaining an increased stock of animals upon it. All of these advantages are increased when root crops are made to enter largely into the system of culture.

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those that are more sensitive to cold, gross feeders, and that require the greatest weight. He goes on to show, from numerous examples, that these several breeds are the most profitable in the several districts assigned them; and that they are manifestly improved, in most cases, by a judicious cross with the improved short horns. There is much good sense in the writer's remarks; and although the descriptions of the three formations, as to elevation, does not fully apply in the United States, the facts we have copied afford useful suggestions to the American grazier.

*"All the western part of the intendancy of Vera Cruz," says Humboldt, in his New-Spain, "forms the declevity of the Cordillems of Anahuac. In the space of a day the inhabitants descend from the regions of eternal snow, to the plains in the vicinity of the sea, where the most suffocating heat prevails. The admirable order with which different tribes of vegetables rise one above another, by strata as it were, is no where more perceptible than in ascending from the port of Vera Cruz to the table land of Perote. We see there the physiognomy of the country, the aspect of the sky, the form of plants, the figures of animals, the manners of the inhabitants, and the kind of cultivation followed by them, assume a different appearance at every step of our progress.

"As we ascend, nature appears gradually less animated, the beauty of the vegetable forms diminishes, the shoots become less succulent, and the flowers less coloured. The aspect of the Mexican oak quiets the alarms of travellers newly landed at Vera Cruz. Its presence demonstrates to him that he has left behind him the zone so justly dreaded by the people of the north, under which the yellow fever exercises its ravages in New Spain. This inferior limit of oaks warns the colonist who inhabits the central table-land how far he may descend towards the coast, without dread of the mortal disease of the *vomito*. Forests of liquid amber, near Xalapa, announce by the freshness of their verdure that this is the elevation at which the clouds, suspended over the ocean, come in contact with the basaltic summits of the Cordillera. A little higher, near la Bandarila, the nutritive fruit of the banana tree, comes no longer to maturity. In this foggy and cold region, therefore, want spurs on the Indian to labor, and excites his industry. At the height of San Miguel, pines begin to mingle with the oaks, which are found by the traveller as high as the elevated plains of Perote, where he beholds the delightful aspect of fields sown with wheat. Eight hundred metres higher, (two thousand and six hundred feet,) the coldness of the climate will no longer admit of the vegetation of oaks; and pines alone cover the rock, whose summits enter the zone of eternal snow. Thus in a few hours the naturalist, in this miraculous country, ascends the whole scale of vegetation, from the heliconia and the banana plant, whose glossy leaves swell out into extraordinary dimensions, to the stunted parachyma of the resinous trees."

The Farmer's Garden.

The approaching is the proper season to lay out gardens, or to remodel old ones, preparatory to the operations of the coming spring. We shall therefore offer some remarks upon their formation and preparation; and intend hereafter to speak of the fruits and culinary vegetables most worthy of garden culture; and, subsequently, for the guidance of such as have a taste or desire to mingle the ornamental with the useful—to gratify the eye as well as the palate—we propose to give a list of shrubs, herbaceous plants and annuals which are in most esteem, and best adapted to our climate.

A kitchen garden, to which our observations will chiefly refer, should be near the dwelling, where it is not always practicable to *choose* the soil, the aspect, or the surface; these are in a great measure contingent upon the abiding residence. The best aspect is south, east, and the intermediate points, because it is the earliest; the best *soil*, is a rich deep loam, with a porous subsoil, that the roots of trees and plants may penetrate deep and broad, find plenty of sustenance, and be exempt from standing water. The best *surface* is one that is level or gently sloping, as such is least liable to be washed and impoverished by heavy rains.

Having selected a site, the next step is to enclose it with a substantial durable fence; for without this precaution the usefulness and beauty of the garden are at the mercy of every unruly boy, pig and cow of the farm and neighborhood. A hedge, with a fence to protect it on the exterior till sufficiently strong, is the handsomest, if not the best material. We don't make this recommendation in the expectation that it is likely to be followed by many, or perhaps any—for the idea is a prevalent one, and is sanctioned by the high authority of the Hon. James Garnet, that live fences are neither economical nor practicable in our climate—but because *we* think they can be made both cheap and efficient, when we become better acquainted with their management, and that they will ultimately be resorted to in many districts of our country where the materials for dead fences may become scarce and dear. Our reason for thinking they are practicable, results from our own experience: we have a strong substantial hedge of the three thorned locust growing, one of our native thorn, and one of privet. The two first are already a barrier to cattle, and they are all annually improving in strength and beauty. We have began to rear a fourth with plants of the buckthorn.

The *size* of the garden will depend upon the taste or convenience of the proprietor. It should not be less than the fourth of an acre, and may embrace, if garden fruit is to be cultivated, two acres. The plan which we submit with these remarks, and which we borrow from Cobbett's Treatise on Gardening, embraces about one acre.

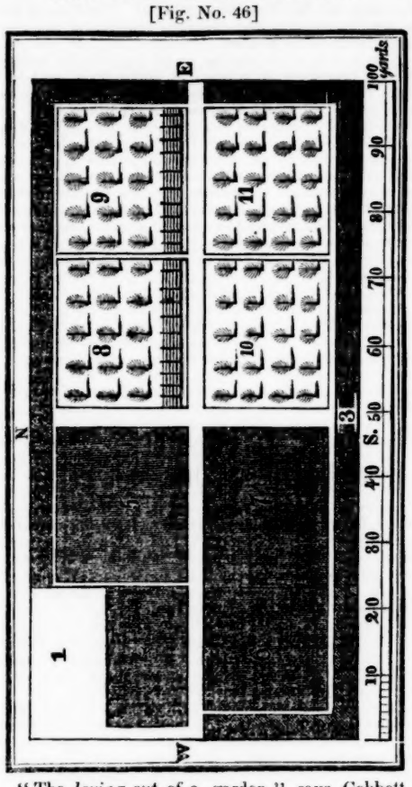
In *preparing the ground*, three prominent objects should be kept in view: that the soil be made *dry*, that it be made *deep*, and that it be made *rich*. Underdrains, when necessary will effect the first; trenching, the second, and manure the third. A *wet* soil, or a soil liable to be wet during any part of the growing season, will not grow healthy vigorous plants. A *shallow* soil will not give sufficient pasture to the roots of trees, or a sufficient depth to the tap-rooted plants which must ever constitute a part of the products of the garden—and is soon affected by drought. A *poor* soil will hardly compensate for labor in garden products. But the soil being dry, and deep, and rich, the seeds well put in in season, and the crop well taken care of, no branch of rural labor makes a more profitable return than that which is bestowed upon a kitchen garden, especially where there is a contiguous market to take off what is not wanted for the family. The expenses of draining and trenching may be considered great and unnecessary; but they are not so in the long run. They are for time, and not for a season; and when once well done, need not be repeated. The fibrous roots of plants penetrate deep, where the soil is congenial, and extend to a great breadth. Cobbett traced roots of the common turnip four feet, and Tull proved that they extended to six feet. "It is well known," says Cobbett, "to all who have had experience on this subject, that of two plants of almost any kind that stand for the space of three months in topsoil of the same quality, one being on ground deeply moved [or trenched,] and the other on ground no deeper than usual, the former will exceed the latter one half in bulk. And as for trees, from the pear tree down to the currant bush, the difference is so great, that there is no room for comparison." A tolerable spadesman can easily trench four rods in an October or November day. This, at seventy-five cents a day, would bring the cost of trenching an acre, and of rendering it permanently useful, to $30—and the ploughings, harrowings, &c. would be superseded in the work of preparation.

The process of trenching is this: Begin at one end of the plat of ground, with the spade, a trench, all along, two feet wide, and two feet deep, unless an ungenial subsoil intervenes, in which case you may go some inches into this. "Throw the earth out on the side away from the garden that is to be; shovel out the bottom clean, and make the sides of the trench as nearly perpendicular as possible. Thus you have a clean open trench, running all along one end of your garden ground. You then take another piece, all along two feet wide, and put the earth that this new piece contains into the trench, taking off the top of the new, two feet wide, and turning that top down into the bottom of the trench, and then taking the remainder of the earth of the new two feet, and placing it on the top of the earth first turned into the bottom of the trench. Thus, when you have again shovelled out the bottom, and put it on the top of the whole that you have put into the trench, you have another clean trench two feet wide and two feet deep. You thus proceed till the whole of your garden ground be trenched;" filling up the last trench with the earth taken out of the first; "and then it will have been cleanly turned over to the depth of two feet." *Cobbett*, § 20. There is another strong inducement for trenching, where fruit trees are to be grown. Some gardens are found not to be congenial to the growth of certain fruits, as the pear, the plum, &c. This is often owing to the superficial stratum in which their roots are permitted to penetrate, often to stagnant water, reposing unobserved upon the subsoil, and often to deleterious materials in the subsoil itself. By draining, the water is conducted off; by trenching, the tilth is deepened, and the deleterious matters in the subsoil, within the natural range of the roots, brought under the improving influence of the atmosphere, and its injurious properties destroyed by that influence, and from becoming incorporated with the true soil. To those who know how to appreciate the value and luxury of a succession of choice garden fruit, an outlay of $30, or rather of $20—for the suitable preparation by the plough will cost $10—will think little of the expense, when put in competition with the advantages which are likely to result from trenching. And if a garden is to be trenched, it is better to do it before trees or shrubbery are planted in it, and the ground laid out, than after these operations have been wholly or partially performed.

We copy, as we before observed, from Cobbett, our plan of a garden, because we think it well suited to the wants and convenience of the American farmer; and that it is better to have trees and culinary vegetables in distinct compartments, than to mix them, to the prejudice of both, as is generally the practice. The plan embraces one acre. One-half, or one-quarter, of this space may be taken by those who are parsimonious of means, or who distrust the utility of a larger plat; and with trifling modifications which will suggest on reflection, the general outlines of the plan may yet be preserved.

PLAN OF A FARMER'S GARDEN.

[Fig. No. 46]



"The *laying-out* of a garden," says Cobbett, "consists of the division of it into several parts, and in the allotting of those several parts to the several purposes for which the garden is made. These parts consist of *walks*, *paths*, *plats*, *borders* and a *hot-bed ground*."

The length of the garden, from east to west according to the above plan, is 100 yards; the breadth 50 yards. Cobbett's reasons for this form, an oblong square, are, "*first*, that we get by it a *long warm* border under the *north* fence for the raising of things early in the spring. *Second*, we get a *long* and *cool* border under the *south* fence, for *shading*, during the great heats, things to which a burning sun is injurious. *Third*, by this shape of the area of a garden, a large portion of the whole is sheltered, during winter and spring, from bleak winds." The following is Cobbett's explanation of the plan before us:

"The long walk, from east to west, is six feet wide, as is also the cross walk in the middle. All the paths are three feet wide. The borders, Nos. 2 and 3, are nine feet wide. The dimensions of the plats, Nos. 5, 7, 8, 9, 10 and 11, are (each) seventy feet from east to west, and fifty-six from north to south. Plat No. 6, is fifty-six by fifty. Plat No. 4, is sixty feet by thirty-six." And as to the mode of planting, he observes correctly, that all crops of large growth, as corn, peas, beans, onions, beets, &c. should be planted in rows to run north and south; while small crops are best planted in rows running east and west, across the beds.

It will be seen that a third part of the garden is appropriated to fruit trees, as the pear, plum, peach, cherry, &c.; that one-sixteenth is appropriated to hot-beds; and the remainder, embracing six hundred feet of early and late border, to culinary vegetables, medicinal and sweet herbs, small fruits, &c.

We would suggest that a portion of one of the borders be appropriated to a *garden nursery*; in which cuttings of the grape, currant, gooseberry, &c. and seedlings of fruit trees, may be planted, and budded or grafted, to replace those which decay. The currant will not do well in the same ground more than ten or a dozen years. The currant may be raised on a single stem, as a dwarf tree, if, previous to the cutting being inserted, all the eyes but two or three of the upper ones, are cut out with a knife.

An *asparagus bed* should be placed in an early border. It may be made from roots or seeds. The plants or seeds should be in rows across the bed twelve inches apart, the plants six inches in the rows. It will last many years if taken care of, pay well for the labor bestowed upon it, and yield one of the finest delicacies for the table.

We shall continue the subject, and proceed, in our next, to give some directions for filling the different compartments embraced in the above plan.

Prevention of Smut.

We extract the subjoined table from the Quarterly Journal for June, as particularly applicable and useful at this season. It gives the results of trials with various liquids, as steeps for seed wheat, made by Mr. Bevan, on a sandy soil in Bedfordshire. The columns in the table which are marked A. contain the result from the steeped grain which was sown; and those marked B. are the results from smutted samples.

LIQUIDS EMPLOYED.	No. of smutted ears in three sheaves.		Bushels of good wheat per acre.		Cwts. of straw per acre.	
	A.	B.	A.	B.	A.	B.
Solution of potash,	1	81	21.6	13.6	36.6	29.1
muriate of potash,	3	218	20.2	10.1	36.0	21.1
muriate of potash, (salt petre.)	7	115	23.8	14.3	36.9	31.9
soda,	9	159	20.2	11.7	35.6	26.7
muriate of soda, (common salt,)	0	200	24.0	14.5	41.5	33.3
sulphate of soda, (glauber salt,)	12	241	21.6	12.3	38.5	27.8
muriate of ammonia, (sal ammo)	1	150	19.8	17.6	33.4	30.2
soot,	0	123	20.8	11.4	34.8	25.3
lime, saturated,	0	2	21.9	12.4	38.7	25.9
nitric acid, (aqua-fortis,)	Seed	did not vege tate.				
muriatic acid, (spirit of salt,)	0	136	20.7	16.1	35.7	34.1
sulphuric acid, (oil of vitriol,)	0	0	29.4	17.2	35.4	37.1
Dry, in its natural state,	0	323	29.3	14.7	35.7	31.1
Washed in common water,	.....	107	.....	18.3	....	35.8

It will be seen that the seed steeped in a pickle of common salt was free from smut, gave the greatest product in good grain, and the greatest weight of straw. This steep may be used by every farmer.

The article from which the above table is extracted was written by George W. Johnson. The writer examines the erroneous theories and opinions which have prevailed as to the origin or cause of smut in grain, and we think satisfactorily shows their fallacy. Mr. Johnson then proceeds to detail what he considers correct knowledge upon the subject, and quotes some of the most eminent naturalists in support of the opinion, that what passes by the different names of *smut*, *dust-brand and burnt corn* is a parasitical fungus, which preys not only upon the sap, but destroys the very organic structure of the grain and chaff upon which it fixes. Botanists generally distinguish this fungus by the name of *urido segetum*. Chemical analysis has shown it to consist, 1st. Of about one-third of its own weight of a green, butryaceous, fœtid and acrid *oil*. 2d. Nearly one-fourth of a vegeto-animal substance, perfectly similar to that which comes from *putrid gluten*. 3d. A *black coal*, one-fifth of its weight, similar to that which is found in all remnants of putrified organic compounds. 4th. Free *phosphoric acid*, amounting to scarcely more than .004 of the smut. 5th. Phosphates of ammonia, magnesia and lime, in the proportion of a few thousandths." "The contagion attacks especially the gluten, and precedes, indeed prevents, the formation of starch." It has also been shown, by Duhamel, Kirby and others, that the disease exists in the affected plant, before the development of the head; that it is propagated by minute seeds, which attach to the kernel, and which are so light as to float buoyantly in a damp atmosphere; that the vitality of these seeds is not destroyed by frost; but that they will contaminate seed grain, with which they come in contact, after being long in the soil. In early spring, when the plants were but a few inches high, upon carefully opening the hose or blade which covers the ear, M. Duhamel found this embryo already black and distempered. After quoting the results of many experiments besides those in the above table, made by Mr. Bevan, Mr. Johnson adds—

"The conclusion from these and many other accordant experiments is, that washing the seed is effective in preventing the communication of the disease to the crop to which it gives birth. If the washing was frequently repeated, or the cleansing made complete, by passing a continued stream through the wheat for some hours, it is probable that simple water might be employed for this purpose as effectually as any saline solution. But as this would require more labor than is desirable, and as the salts, &c. employed are beneficial in other ways, by protecting the seed from vermin, and ministering to the future vigor of the plants, steeps are generally and very properly adopted."

If lime be adopted, it is recommended to prepare it by mixing "one pound of fresh lime with three gallons of boiling water, allowing these to stand for two hours, and the clear liquor then to be poured off and immediately used. In this liquor the wheat should be soaked for twelve hours, stirred twice or thrice during the time, and then mixed upon a floor, with the powder made by pouring three gallons [pints?] of boiling water upon five pounds of lime."

Mr. Johnson has had no experience with lime himself; but he has witnessed many experiments with stale urine and a solution of common salt. He thinks the latter the most agreeable; and although both were completely effective, without exception, he has used the salt, as being most cleanly as well as convenient. His mode is, to wash the seed with pure water, to skim off the floating light grains, and then to soak it twelve hours in a pickle made with common salt, strong enough to float a hen's egg. Mr. Johnson is satisfied, from experiments he made, and which he details, that the soil is one source of infection, and that salt is an antidote to this infection; and he thinks the truth of these opinions is confirmed by the fact, "that fields in the vicinity of the sea are rarely injured, and never extensively, by the ravages of the smut."

Green's Straw Cutter.

Our ingenious countryman, Mr. Green, has received a high compliment, in the encomium which has been passed upon his machine by the Highland Agricultural Society of Scotland. A description of this machine was sent from Canada to the secretary, by Mr. Ferguson, who pronounced it "the easiest and the most effective cutter he ever met with—a real first rate machine." The communication was laid before the committee on machinery, who, after making a machine according to the description, and sufficiently testing it, reported that they found it "to bear out all that was reported of it by Mr. Ferguson;" that "it is now ascertained, that it will cut *three times more* than the best of the common sort, and with *less force*;" and that "one person driving the machine will cut with ease five hundred weight of hay or straw in an hour." This is a high, but deserving commendation. The notice, with a cut of this machine, is published in the society's papers for June.

Suggestions to the Wool Grower.

Hitherto the attention of the farmers has been principally directed to the rearing of sheep for the profit of the fleece, or of the carcass separately, without reference to the advantages to be derived from both conjointly. Hence the Saxon, Merino and New-Leicester breeds have been principally sought for, the two first on account of their fine wool, and the latter on account of the great weight of carcass. The great increase in the number of fine wooled sheep, and the serious depression for some time in the wool market, render it worth the consideration of the sheep master, whether he cannot vary the character of his flock to advantage.

The South Down sheep of Britain have the reputation of making the best mutton of any breed; and this mutton sells for a penny a pound more in the London market than any other. We have ate of this mutton several times, and recently, and think it deserves all the commendation bestowed upon it. The sheep are hardy, and are peculiarly adapted to light upland soils. They take on fat quick, and come to early maturity. This breed has been recently improved by a cross with the improved Cotswold, with great advantage to the fleece, without seeming prejudice to the mutton. A Mr. Troynam states in the July number of the Farmers' Magazine, that he obtained from 300 ewes of this cross, while suckling their lambs, an average of five pounds of wool each, and from 110 yearlings, an average of seven pounds two ounces each. The wool sold at 42s. per tod of 28lbs. which is equal to 32 cents per lb. or $1.60 for the ewes, and $2.24 for the yearling fleece.

Harvesting Corn.

As the Indian corn harvest comes in this month, we would suggest to those who have not adopted the practice, to cut the crop at the ground, and immediately to deposite it in stooks, as a means of lessening the harvest labor, of securing the crop from the injurious effects of early frost, and of materially enhancing its value, over the old mode of topping. The crop may be cut as soon as the grain has become glazed. By our experiments, made with great care, the details of which will be found in our last November number, we gain six bushels an acre, in heavy corn, by cutting up the crop, over what we obtain by topping it, and make a still greater gain in the forage.

A Steam Plough,

Is now being constructed in New-Jersey, designed for operating on the western prairies. An intelligent gentleman who has examined it, has so much confidence in its success, that he tells us he has ordered one for his own use, in the valley of the Wabash.

The Crops—(Private Correspondence.)

After ordering a quantity of Rohan potatoes and Dutton corn to be forwarded to him the coming fall, our Baltimore correspondent, G. B. Smith, adds: "I would remark, that I place great value on the fact of getting these articles from you direct, for our farmers have been so greatly hoaxed or cheated by seedsmen, that they have little confidence in them. I could not have sold the spring wheat (Italian) had Mr. B. not been able to have brought a letter from you. All I sold has turned out well. The extreme heat has caused much of it to *shrink*, but it has all made a good crop. What little Siberian was sold here has not done well at all; and a great deal that I knew was of a doubtful character, and refused to have any thing to do with, has, as I expected, resulted very badly. At present the prospect of the Dutton corn is favorable."

Mulberry Farm, N. J. July 29.—"Our harvest is over, and we have but a poor crop,—I mean a light one. Rye is meagre enough. Some of our best farmers say they have not half a crop. As a general remark, I believe we shall not gather more than ten bushels to the acre, this section of country over. This region is one of the best; indeed more rye is raised upon an equal number of farms than on any other in the state. The grass crops are proportionably light. Oats are not half a crop. Corn is so injured by drought, that one and all agree there cannot now, if rain should come within a few days, be more than half a crop. There has been no rain for six weeks past, and vegetation generally is suffering beyond recovery. Pasture there is none. Potatoes are scarce—buckwheat destroyed by grasshoppers. Truly the farmer's prospect is discouraging and dark enough. J. N B."

Knoxville, Te.—"The small grain harvest was never better in East Tennessee. The crop from the golden chaff, alias Missouri wheat, is unusually large. It is decidedly the favorite of our farmers. It was from its first introduction into this climate excellent—but the acclimating process has improved it essentially. We have been experimenting with the Siberian wheat, but as it is not yet matured, I cannot say how it suits our soil and latitude. *J. G. M. Ramsey.*"

Braintree, Mass.—"Wheat has failed with me, (the Siberian spring.) It has rusted; the kernel has not filled. The land was limed, and the produce of straw is estimated at two and a half tons per acre—so we are here at a loss for some crop to seed down with in June, from our lands being springy, as our farmers reject oats and barley. Of hay our yield has been abundant, I should judge a quarter more than the last season, and it has been got in well. Corn promises well. Potatoes in many places lack rain. Fruits not so abundant as the blossoms indicated, though the growth of wood has been great. On the whole, the countryman has this year more than usual to be grateful for. *B. V. French.*"

The rust is a sufficient cause of the shrinkage of the wheat, and the crop should be cut as soon as it appears. It seems to us, besides, that the soil of East Massachusetts lacks something besides lime, to fit it for the wheat crop, viz. animal matter, an essential element of the gluten of wheat. Barley and oats are good crops on soils adapted to their growth; and we suspect, by the greater amount of their product, on such soils, would make a better return than wheat does there. We advise our correspondent to try again. First to underdrain his wet grounds, which will enable him to sow early; and if he is anxious for the wheat bounty, let him apply some concentrated manure, containing animal matter, as bone dust, horn shavings, poudrette, animal carbon, urine, fish or slaughter-house manure. These article are all *comeatable* in the vicinity of Boston.

Greenwich, N. J. August 9th, 1838.—"The wheat crop with us was quite promising, but suffered from the rust, and many of our farmers have their crops injured by the smut. The corn crop never looked more promising than at the commencement of last month, but we have had no rain for more than four weeks, and much of it is now entirely dry; but I suppose that rain in a few days would probably make half a crop. Some buckwheat was sown before the ground became too dry for vegetation—some have been waiting for rain, and have not sown; and some that was sown since the ground was dry does not vegetate. Respectfully. *Benj. Sheppard.*"

From the various notices in the newspapers, and from information derived from travellers, it seems certain, that the early harvest, embracing winter grain and hay, has been unsually abundant throughout our country. Yet we regret to learn, that the drought of July has been severe and disastrous to the late crops, all along our Atlantic border, from Virginia to Massachusetts.

In Virginia, it is stated from Norfolk and Winchester, that the corn crop has been greatly injured, and upon light soils nearly destroyed.

In Maryland, the injury is still greater; in Frederick and Washington, two of the best agricultural counties, "many farmers have cut down their corn stalks, with the intention of putting wheat in the fields. In many fields the yield will not be half a barrel (2¼ bushels) the acre. The clover and pasture fields have also suffered dreadfully, and upon many farms they have had to resort to their hay to sustain their stock."

In Pennsylvania, the injury has also been very serious. It is stated from Harrisburgh, that "the corn and potato crops are considered as gone past recovery. The farmers are turning their cattle into their corn fields, and cutting their stalks up for fodder." Fruit, also, has been much injured.

In New-Jersey, the south part of New-York, Connecticut, Rhode-Island and Massachusetts, the drought has also been severe. It has been less so in this vicinity; though here the corn, potatoes, and late sown wheat and oats will be sensibly diminished in product. The heavy rains which fell here on the 5th and 6th August, completely saturated the soil, and revived and gladdened animated nature. In the northern and some portion of the western parts of our state, there has been no want of rain.

On Earthing Potatoes.

The general practice has been, and now is, to earth the potato crop, by making conical hills or ridges.—But, within a few years, the propriety of this mode of culture has been doubted, as tending to curtail the pasture of the plant, and to expose it to greater injury from drought; and several, who have experimented in the matter, have come to the conclusion, that the crop is most productive when but partially, or not at all earthed. A French Journal gives the following as the result of one experiment made by M. de Dombale:—Eight rows were horse-hoed; some little time after they were earthed up, and when five inches high they were again earthed up. Other eight rows in the same place, and under exactly the same circumstances, were *only horse-hoed*, at the same time with the others, but received no earthing up or subsequent culture. The product of the earthed up potatoes was 1,222 lbs; of the others 1,408 lbs. and in a very fertile spot, the difference was one-third in favor of the latter.

Effect of Steam Power.

The effect of steam navigation in enlarging the commerce in eggs, has been wonderful. The importation of eggs from Ireland, during the last year, to Liverpool and Bristol alone, amounted in value to $450,000. The importations into England from France, were probably much greater. The egg commerce of our country has also been greatly increased, by the facility of transporting them to our large towns by means of steam. Equal facilities have been afforded, by steam navigation, for the transportation of beef cattle. Thousands of fat animals are now annually taken down the Hudson, on board of boats towed by steam. Rail-roads are also now being employed for the transportation of fat animals, and promise important advantages, not only in diminishing the expense of marketing, but in preventing the waste of flesh incident to driving a distance.

Horticultural Society of the Valley of the Hudson.

This society was organized in May last. We have not hitherto noticed any of its proceedings, from the hope, that ere this, we should have been able to publish them entire, with a notice of the first exhibition. The proceedings and notice came to us first in a printed form after the present number of our paper was prepared for press. We are obliged, therefore, to be content with giving them a brief notice for the present, reserving to a future opportunity a more detailed statement.

The plan of this association originated with a few individnals, who were desirous of profiting themselves and the public, by the improvement of horticulture and rural embellishment, in the valley of the Hudson—by introducing and disseminating among us, all the choice garden and orchard fruits, culinary vegetables and ornamental plants, that are congenial to our soil and climate, and suited to our wants and comforts. A circular, inviting a meeting at New-York on the 30th May, for the purpose of organizing an association, was printed, with the following respectable names attached to it, viz: Morgan Lewis, James G. King, J. Buel, Stephen Van Rensselaer, Ed. P. Livingston, John W. Knevels, Theodore Allen, J. R. Stuyvesant, John Torrey, Alex. Walsh, Geo. C. Thorburn, Ph. S. Van Rensselaer, James Wilson, A. J. Downing, Wm. Thorburn, J. A. Thompson, Jas. A. Hamilton and Freeborn Garretson. From an untoward series of disappointments, these circulars had but a partial circulation, and did not arrive in N. York for distribution till the day before the time appointed for the meeting.

A meeting of respectable gentlemen, from different counties on the Hudson, did, however, take place at the rooms of the Lyceum of Natural History, in New-York, on the 30th May—a constitution was adopted, officers were chosen, and preliminary steps were taken to have a semi-annual exhibition of horticultural productions, together with a suitable address, at the rooms of the Lyceum, No. 563 Broadway, this fall. The time of the exhibition has now been fixed for the 27th of the present month of September.

The *objects* of the society, as set forth in the constitution, are—"the promotion of horticulture, and the taste for rural improvement in general—by comparative exhibitions, at which medals and premiums shall be awarded—by procuring and disseminating choice fruits and plants—by experiments in culture throughout different sections of the territory embraced—by lectures and essays on various subjects connected with the science and practice of horticulture—and in such other methods as shall be deemed advantageous by the association." The constitution also declares, that there shall be semi-annual exhibitions—first, the summer meeting, for the smaller fruits and earlier flowers, to be held in June, at Albany, Poughkeepsie and Newburgh, alternately; and second, the autumnal meeting, for the larger variety of hardy fruits, and late floral and vegetable productions, to be held in September or October, in the city of New-York. The terms of admission to members, are an initiating fee of *Five Dollars*—no annual contributions are exacted.

The following officers were elected for the ensuing year:—J. Buel, of Albany, President; A. J. Downing, of Orange, Corresponding Secretary; N. G. Carnes, of New-York, Recording Secretary; G. C. Thorburn, of New-York, Treasurer; Ph. S. Van Rensselaer of Albany, Ed. P. Livingston of Columbia, E. Holbrook of Dutchess, N. Becar of Kings, Alex'r Walsh of Rensselaer, John Torrey of New-York, C. Ludlow of Orange, R. Arden of Putnam, J. E. Dickey of Queens, Eleazer Lord of Rockland, Samuel Young of Saratoga, A. B. Hasbrouck of Ulster, James A. Hamilton of Westchester, and William Emerson of Richmond, Vice-Presidents. *Executive Committee:* Theodore Allen, J. R. Stuyvesant and J. W. Knevels, of Dutchesss; Henry Robinson, J. F. Betts and C. Downing, of Orange; J. M'Donald M'Intyre, William Thorburn and James Wilson, of Albany; and John J. Palmer, James Pennell, (M. D.) J. A. Perry, James R. Hamilton, John Groshon, and William R. Rushton, of New-York.

Gentlemen throughout the valley of the Hudson, and elsewhere, are requested to bring to the exhibition, on the 27th September, such horticultural and agricultural products as may serve to make up a complete comparative exhibition of the various fruits, flowers and vegetables, produced upon our diversified soils.

The Horticultural and Pomological Societies of Europe, have effected important benefits to mankiud, by their labors in producing new varieties of fruits, flowers and enculents, and in collecting, and disseminating the choicer varieties. We are indebted to their labors, at this day, for many new and valuable kinds, which otherwise would probably have remained unknown to us. Nor do we lack evidence, at home, of the utility of these associations: the societies at Boston, Philadelphin, Baltimore, Washington, and in the western part of our state, have done, and are doing, much, to multiply the sources of human enjoyment, and to promote a laudable taste for rural embellishment and social enjoyments. When we consider the science, the wealth, the taste, and the professional talent, that may be found in the valley of the Hudson—the liberality and enterprise of its population—the susceptibility of our valley for high and picturesque improvement—and the advantages which may be made to flow from the labors of the society,—we cannot hesitate in expressing a conviction, that the project will be promptly and generously sustained and supported by our enlightened citizens.

Application for membership may be made to the officers named above, who will furnish the printed proceedings, embracing the constitution, and a diploma, under the seal of the corporation.

Great Sale of Short-Horned Cattle.

The Short-Horned stock of C. S. Clarkson, of Cincinnati, full and part blooded, was lately sold at auction. It comprised 91 animals, and sold for the gross amount of $27,802—averaging $305 each. One of the cows with a calf, sold for $1,075; a cow, 12 years old, sold for $1,000; a yearling heifer at $700; a two year old heifer at $875; a three year old bull $1,450; and a bull calf, 9 months old, for $1,000!! When will our farmers learn from these extraordinary prices, the difference between superior and ordinary cattle! When they appreciate justly their true interests. By the way: we think the Short-Horn fever has attained a crisis in Ohio and Kentucky, and that prices must hereafter retrograde, rather than advance. We remember that in 1815, or thereabouts, some Merino bucks sold for $1,500, and that a few years afterwards they sold at $50, and even at $15. To use a common sense proverb—"there should be reason in all things."

A Flora of North America,

By Prof. John Torrey and Asa Gray, is now being published by Messrs. Carville, New-York, Carey & Lee, Philadelphia, and Little, Brown & Co. Boston. It is to be comprised in three closely printed vols. of 550 pages each, and is to embrace all the indigenous and naturalized plants growing north of Mexico, including Nuttall's collection from the Rocky Mountains. The first volume is to comprise the exogenous polypetalous plants, and to be published in three numbers, or parts, of 184 pages each—price $1.50 for each part.

Flax Culture.

We have been presented with two specimens of flax fibre, one in a greenish unrotted state, and the other, termed short-staple, prepared by a new process, white, soft and delicate, fitted for the finest fabrics. This short staple may be carded, spun and wove, by machinery, like cotton. Three tons of stem will make one ton of unprepared lint—seven tons of stem will make one ton of short-staple lint. This new discovery in the process of preparing the lint, will give encouragement for an extended culture of flax, particularly in districts where it is now raised for the seed only, as in Seneca county—as the stems will be worth $12 per ton to the grower, exclusive of the seed, as soon as they are thrashed. If the anticipations which have been indulged in, of the value and importance of this discovery, should be realized, flax is likely ere long to become one of the great staples of our soil.

Insects—Genus Curculio—Weevil.

A series of papers is being published in the Edinburgh Quarterly Journal of Agriculture, "On insects most injurious to vegetables and animals, and the means best calculated to counteract their ravages," by James Duncan. Of the genus Curculio, Mr. Duncan informs us, no less than five hundred different species have been described as inhabiting Britain.—"Both in the larvæ and perfect state, they feed exclusively on vegetable substances." Since the time of Linnæus, naturalists have subdivided them into a multitude of genera. They are found to be very formidable enemies, both to the farmer and gardener. Some, in their larvæ state, prey upon the roots of plants; some upon the foliage; some upon the blossoms; some upon fruit; and some upon ripened seeds, as the weevil upon the contents of the granary. This last kind, particularly prejudicial to the farmer, is denominated

"*Calandra granaria*.—The extensive devastations of this, the *grain-weevil*, as it is called *par excellence*, have obtained for it a kind of bad eminence among its compeers, and caused its habits to be investigated with considerable attention. Several circumstantial accounts of it have accordingly been published; but we cannot, for that reason, omit to include a resumé of its history in a general notice of the insects destructive to vegetable produce, more especially since the best of these accounts are in a foreign language, and in works not readily accessible to the general reader. It is the only species of the genus *Calandra* that can properly be considered a native of this country, and presents the following generic peculiarities:—Antennæ scarcely longer than the head and rostrum, inserted near the base of the latter, nine-jointed,—the elongated radical joint, when bent backwards, reaching to the thorax,—six following short,—the remainder forming a narrow, somewhat ovate club, the apex of which is spongy; rostrum rather long; thorax elongate, a little narrowed in front; elytra scarcely longer than the thorax, and not quite covering the abdomen; legs rather short. The species in question is nearly two lines in length; of a brown or pitchy colour when mature, but pale on first emerging from the pupa; the thorax is nearly as long as the elytra, rather depressed above, and covered with large oblong punctures; elytra scarcely so wide as the thorax at their base, the surface marked with deep lines faintly punctured in the bottom; under side of the body also punctured; legs rusty red.

"This insect frequents granaries and other repositories of corn, where the female buries herself in the heaps, and deposites her eggs in the grain. For this purpose she makes a small hole with her rostrum in the skin of the grain in an oblique direction, and, after having placed an egg in it, closes the aperture by means of a glutinous matter. Never more than one egg is consigned to a single grain, as the whole of the substance of the interior is insufficient for the support of no more than one larva. The latter is hatched in a longer or shorter time, according to the temperature, but usually after a few days. It is a small vermiform creature, of a white colour, and about a line in length, composed of nine segments, the body soft, but the head of a harder consistency, in order to afford sufficient support to a pair of strong jaws, which are the only external organs it has either space or apparent inclination to employ. With these it erodes the farinaceous substance of the grain, continually enlarging its dwelling as it continues to increase in size; and by the time that the whole of the interior is scooped out, it is prepared to assume a different form when food is no longer necessary. The pupa into which it now changes is also white, somewhat transparent, and lies like the kernel of a nut within its shell, the latter being formed by the exterior envelop of the grain. When the perfect insect is matured, it makes its escape by gnawing a hole in the walls of its tenement.

"The period when these changes take place, and the duration of each successive state, are greatly influenced by the temperature. In the south of France, for example, the female commences laying in the month of April, and the insects continue to propagate till September. In this country they increase rapidly only during the warmer months of summer. As might naturally be expected in such circumstances, the geographical distribution of the *Calandræ* is likewise dependent on temperature; they occur in profusion in the south of France, and similar latitudes in Europe; are likewise too abundant in London and the southern districts of England, but gradually become less plentiful as we advance northward. We believe that they seldom occasion any serious damage in Scotland. On an average, it may be stated, that from forty to forty-five days elapse from the union of the sexes till the evolution of the perfect beetle, the greatest proportion of which is spent in the larva state. From the number of eggs laid by a single female, it has been calculated that her descendants may amount, in a single season, to 23,600 individuals; a degree of fecundity which may enable us to judge of the evil they are calculated to produce when their numbers, in the first instance, are considerable.

"Although the larva is of course the principal cause of this injury, the perfect insects take likewise a direct share in it, by gnawing the grains. It has, indeed, been denied by some observers, that they ever do this, except when making an opening for the admission of the egg; but it is utterly improbable that they should, for such a length of time, frequent places where they can have access to no other kind of food, without using the grain as such. In this condition, however, probably very little food suffices, and the injury done consists rather in the frequent breaking of the skin of the grain, than in the actual quantity of its substance consumed.

"The grain into which this insidious foe has been so expertly introduced, presents no external appearance of being unsound, but when immersed in water, it floats on the surface, a circumstance which intimates that the farina has been destroyed. When this is the case, the infected particles should be removed, if possible from the heap, and the enclosed beetles killed. But in an extensive granary, this is obviously no easy task, and the loss arising from the insects will not in many instances, greatly exceed the trouble and expense incurred by any means of separation that has yet been employed. If the damaged grain, however, be so much lighter as the above-mentioned circumstance seems to indicate, it appears probable that if the whole were passed through a winnowing machine, it would be thrown out in the same manner as the chaff and light corn are in an ordinary case. If this operation were found to answer the purpose, it could be more easily carried into effect than any other plan that has been recommended. That of exposing the corn to heat, is liable to this objection, that before the eggs or larva could be destroyed, the temperature would require to be so high that it would dry the corn too much, and even calcine it.

"The principal object ought to be the destruction of the beetles before they have had time to lay their eggs; after that operation is accomplished, they spedily die of their own accord. Of the various schemes that have been proposed for this purpose, the following is the most approved. When the individuals have passed the winter in a torpid state, are beginning to recover their activity, and to move about among the grain, a small heap, composed of that kind of corn to which they are most partial (which is said to be barley,) should be placed at a small distance from the principal store. The latter should then be turned over, and tossed about as much as possible, at intervals, that the weevils may be fairly disturbed and put in motion. Naturally very fond of quiet, and anxious to escape from such unceremonius treatment, they take refuge in the undisturbed heap placed as a decoy. When collected there in numbers, they are speedily incapacitated for further mischief by having boiling water poured over them in such quantities as completely to saturate the heap. Such individuals as escape to the walls or elsewhere, may be swept together by a broom, and easily disposed of.—The corn of the decoy-heap may afterwards be separated from the dead insects by sifting. Even though this plan may appear not to promise much in the recital, it is affirmed that, in practice, it has been attended with highly favourable results.

"As these creatures do not propagate except at a pretty high temperature, attempts have been made to check their increase by keeping that below the requisite degree. The only means employed for this purpose is free ventilation; but this must necessarily prove inefficient; for it is obviously impossible, in the summer months, thereby to effect such a reduction as is at all likely to influence their economy. More might be expected from mixing the corn with quick lime, sulphur, or some other substance which seems fitted to disgust them; but this could only be done with grain designed to be used as seed; for the taint they are likely to communicate, render such applications inexpedient when it is to be employed for other purposes."

It is our intention hereafter to make further extracts from the interesting numbers of Mr. Duncan.

Suggestions, &c. in Husbandry.

[*Abstracted from foreign publications.*]

BONE MANURE.

C. W. Johnston, who has recently published a work of repute on liquid manures, in an article on bone dust, in the Farmers' Magazine, condemns the practice of mixing plaster with it, for turnips, as the latter, he says, is not a fertilizer to the turnip crop. The price of bone dust in England, is from £4 10*s* to £5 5*s* per ton (20 to 24 dollars.) Thousands of acres have been brought into a productive state, by the use only of this fertilizing material. The introduction of the use of bone dust into the United States is very recent. But two or three crushing mills have yet been erected; and the demand for agriculture is likely to keep pace with the supply. There are three advantages arising from the use of this and other concentrated manures, as poudrette, horn shavings and animal carbon, &c.: they are portable—enough for an acre of land can be carried at a single load—they act speedily—their effects being immediate—and they promote clean husbandry, being free from all seeds that annoy the crop, and of course save labor in weeding, where they are applied. Diminutive in quantity as they may seem, they have nevertheless become, in Europe, auxiliaries to the cattle yard, and are becoming so with us, in the improvement of the soil. Our practice is to mix the horn shavings and crushed bones with our recent yard dung, when on the eve of applying it, at the rate of a bushel of the one to a load of the other. This induces fermentation, and we think the effect is highly beneficial.

THE TURNIP FLEA.

We find in our foreign agricultural journals—many communications on the subject of the turnip flea (*Haltica rumosum*). One of these, from Henry Le Keux, is particularly descriptive of the habits of the insect, and details a great number of experiments which the writer had gone into to prevent its ravages. The result of his long continued experiments seems to be, that the best and most efficient mode of preventing their depredations upon the ruta baga, is, as our Dutchess correspondent recommends in regard to the grub—to feed them with a more attractive food, than the plants which we would preserve. And M. Le Keux, therefore, sows the seed of the common white and stone turnip with his ruta baga. "I have *invariably* found," he says, "where this has been done, that the former are first attacked, and sometimes, and indeed generally, destroyed, before the latter have been touched, which by that time have grown to such a size as not to be injured by them; and in seasons when the fly has not been very numerous, the Swede has not had a single puncture upon it, while every leaf of the white stone turnip, by the side of it, has been pierced full of holes." M. Le K. detected the larvæ of this insect *in* the leaf, between the epidermis and lower surface.

MANGEL WURZEL.

Mr. Hillyard, an extensive cultivator of this root, gives the following concise observations in regard to the culture, use and preservation of this root, in the Farmers' Magazine.

"Those who have not a depth of mould free from couch, and a good supply of manure, had better not attempt the cultivation of the mangel. It will grow on soils where Swedes will not grow. For lambing ewes in the spring, it is invaluable. Mangel improves by keeping. It should be drilled or dibbled about one inch deep. *Soak the seed till it sprouts*—[an excellent precaution.] I dibble in single seeds 3½ inches apart, in a hole made by a boy pressing down, by a handle about four feet long, a piece of wood sixteen inches long,* and about four broad, with three pegs in, seven inches asunder, to make 3 holes one inch deep, one seed put in each hole, (two if the seed does not appear good) and rake the holes in. When taken up the latter end of October, [this should be done as soon as the tops cease to grow, or the under leaves turn yellow,] strip off every leaf, and throw into furrows two rows, which pull up by hand, the other with double mould board plough, with shell board off. Dig pits two or three feet deep, and twelve broad; in these the roots are stacked, and ridged up to the height of ten or twelve feet from the surface of the earth. Faggots should be set upright about every two yards in the centre of the pit, [before the roots are put in] and continued to the roof, all along which, faggots should lie. By this contrivance heat is carried off, and rotting prevented. Cover up with dry straw or haulm, then cover with mould, allowing a little time for the heat to escape, before completely covering the stock for winter [or spring] store."

An "Essex Farmer" feeds mangel to his horses, and finds it an excellent substitute for hay. He feeds his horses with it all through winter, at the rate of half a bushel per head, mixed with chaff, and one bushel and a half of corn oats per week to each. His horses are thus kept in good working order, and he says he saves 30 per cent, by thus substituting the mangel for hay.

FEEDING CATTLE—MANURES.

It is customary at the cattle shows in Britain, for the successful competitors for premiums in particular, on receiving their award, to address the company present. We find in these addresses many suggestions of practical use, and from practical farmers. At the Suffolk show last December, on the chairman suggesting, that as it was the expectation as well as wish, to blend instruction with festivity, he hoped that any gentleman present who could afford information with respect to farming operations, would favor the company with it. Mr. Shillitto, one of the successful competitors for good stock, rose, and after some preliminary remarks, proceeded as follows.

"The first step of importance, in his opinion, was to obtain a good *sort* of animal, an animal that would car-

*We have used a dibble of this kind. It may be likened to an inverted ⅄; the perpendicular being the handle, and the pegs being inserted in the lower side of the cross or horizontal piece. When the dibble is placed down at the right gauge, which may be readily done by placing the last peg of the dibble in the last hole made, the boy presses with his foot, if necessary, upon the horizontal piece, so as to make the holes sufficiently deep. The pegs may be 3½, instead of 7 inches apart, and thus abridge the labor. In well prepared ground a boy may dibble at a good pace.—*C. Cult.*

ry quality as well as quantity—meat as well as size. The next step was its proper feeding, and to this last point he had paid much attention. One thing to which special notice should be paid, was the quantity of food given to animals. It was a maxim with some breeders to give them large quantities—to gorge them. This, however, was decidedly wrong. On the contrary, be careful not to furnish them with too much, or, in plain terms, more than the animal could thrive as well as fat upon. Again, it was necessary the animal should have a variety of food; for he had seen that, if breeders went on with feeding with one kind of food, the stomach got cloyed. As soon as he saw that taking place in his own beasts, he immediately changed the food. Whenever he walked through his yard, and found an animal not taking sustenance in proper quantities, he had him instantly removed from the rest, until his appetite was restored." "Another matter to which the attention of the breeder should be directed, was the quantity of water given to a beast. Every animal should be allowed to drink two or three times in a day, if it had not water always at command."

The brute, like the man, delights in variety. One kind of food soon cloys the appetite, and excess deranges the digestive organs. We want drink, and *salt*, with every meal; and why not the brute? On the subject of manures, Mr. Shillito remarked.

"The modern agriculturist, he thought, did not pay sufficient attention to the manures made in the fold-yard. Sometimes he had been asked how his fatting animals paid him for the trouble of producing them. This, however, could not be answered by a mere reference to the sum he obtained for them by sale—but there was a variety of circumstances to be considered before he could answer it properly. For instance—the quantity of manure obtained from them was one—not wet straw, but good manure. There was another thing which required attention—when the manure was carred from the fold-yards into the fields, it was suffered to lie in a large heap for a long time—so long, indeed, that before it was spread upon the land its qualities had perished. He was aware that it required a certain time for fermentation to take place, but it was frequently left till such fermentation had passed off. It was his practice, as soon as the heaps were raised on the field, to throw a quantity of mould upon it, and thus prevent evaporation taking place too rapidly. Proper attention ought also be paid to draining the fold-yard. The produce saved was now in ten out of twelve instances lost. It would be advisable when the yard had a fall, to establish conveniences for catching it, and then convey it to the lands. In France and the Netherlands they were extremely careful in preserving this liquid manure, and the peasants might be seen conveying it out to the fields, and giving each plant a proper proportion."

BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.

At the meeting held in December, Dr. Wilkinson communicated the result of a useful invention of Mr. Perkins, for the warming of houses, by which any degree of heat might be obtained, and a room once warmed might be kept at one equal temperature. The expense on the whole would be less than the present mode of warming rooms.

Dr. Wilkinson proposed a premium of £20 for the best essay on the theory of De Candolle and Macaire, that the excrementitious matter of plants is poisonous to similar plants.

Mr. G. W. Hall interposed doubts of the correctness of this theory. He had grown one plant on the same ground for twenty years following. On the subject of lime he would mention to the meeting one other purpose for which he had found it beneficial. It was to convey an increased degree of temperature to lands about to be cultivated, which it did, if used in a caustic state. His method was to break the lime as small as possible, and spread it on the ground, and then half plough it in, and he found that a greater luxuriance of vegetation was produced.

HOLKHAM CATTLE SALE.

The stock sold at this sale were highly commended, and the prices at which they sold are at once an evidence of the fineness of the breeds, and of good management. Four three year old North Devon steers were sold at an average price for each of £36=$160; other oxen sold at £34; South Down wethers, two years old, at £4.8; yearlings at £3.6, and pigs at £5.6.8.

DESICCATED MANURE.

James Sheppard publishes, in the Mark Lane Express, that he can make it fully appear, by experiments he has made the last fifteen months, that the loss consequent upon the waste of the fertilizing matters annually conveyed by the common sewers of London into the Thames, amounts to nearly £500,000, or more than $2,000,000. By means of a disinfecting powder, the mass of putridity is deprived of its noxious effluvia in ten minutes; and in twenty-four hours a fine rich black mould compost is produced, fit for immediate use, or for shipping, either in sacks or bulk. The disinfecting powder, applied to liquids, absorbs the whole, and forms a black mould, and may at any time be removed without any annoyance to the public, or those employed in its transportation or application to the land. A ton of this desiccated manure is stated to be equal, in fertilizing properties, to thirty-six tons of fold-yard manure. It sells at Paris, where it has been longest in use, at 50*s* per ton, or eleven dollars.

An establishment has been made at New-York, by Mr. Minor, for converting the filth of that city into fertilizing materials for our lands, by means similar to those suggested by Mr. Sheppard; and high considerations of cleanliness and health, as well as those which appertain to rural economy, and the productiveness of the soil, forcibly concur in inducing us to wish success to the undertaking. These facts certify to the farmer, that there is fertility and value in every decaying animal and vegetable substance about the farm; and should admonish him to husband and apply them to the soil.

To Correspondents.

STEEPING SEED WHEAT.

We have two communications from Mr. J. Hathaway, persisting in his notion, that the germinating power of Italian wheat is destroyed by steeping it a few hours in brine; though Mr. H. admits, that his results might in some measure have been produced by the grain having been passed through a smut machine. On the other hand, Mr. Hathaway's neighbor, B. P. Johnson writes us, that he soaked the seed for six acres, in a pickle as strong as he could make it, to which he added salt petre, for fourteen hours, and that he never has known wheat come finer and better. In another case his wheat was soaked twenty-four hours, in brine that would bear an egg—and afterwards remained in a barrel ten or twelve days, was then sown, and gave a product of 24 bushels to the acre. We have other notices to the same effect, which it is hardly necessary to detail, as we feel a perfect confidence, from the ten, nay hundreds of thousands of trials that have successfully been made, that steeping seed grain in brine, and liming it, does not destroy its vegetating principle. Yet there is one other case we may quote, which, if there were doubts remaining, would seem to set the matter at rest. Mr. Medary, editor of the Ohio Farmer, steeped the Italian wheat *eighty-four hours*, in a warm temperature, in a pickle so strongly saturated with salt as to coat the grain—and yet *every seed grew*. In another instance, the seed remained in the liquid, or brine, *three weeks*; and of this, too, every seed appeared to grow.

While on this subject of steeps, we will detail a fact communicated to us by Mr. B. V. French, of Braintree, Mass. He steeped seed corn in a solution of salt petre, and planted some of it upon dry, and some upon wet ground; not more than a tenth of the latter grew, while seed not soaked, planted upon wet ground, came well. The steeped seed planted upon dry ground, came up almost without a failure. We leave to naturalists the solution of the questions, why Mr. French's soaked corn, planted in wet ground, and Mr. Hathaway's brined wheat, did not grow. They seem both to be exceptions to a general law.

"*A subscriber*" is informed, that T. A. Knight, the distinguished horticulturist, is dead, and of course cannot answer his questions.

"*A Winchester Patron*" is informed that we do not understand what he means by "tinning" his plum and cherry trees, to prevent the ravages of the curculio. This insect is furnished with wings, and does not, we believe, crawl up the body of the tree. We repeat it, hogs and poultry, if suffered to range among the trees, are the best security we know of, against the curculio which blasts and destroys our fruits. The insect which injures the foliage of the gooseberry, may be destroyed, or avoided, we think, by dusting the bushes with lime, or sulphur, or sprinkling them with a weak brine, occasionally.

Horn-ail—To prevent this, Mr. W. Hardrick, of Bainbridge, wishes us to say, he cuts off only half of the bush of the animal's tail! Rather a dubious preventive, we think.

Rohan Potato and Fruit Trees—J. D. Legare, of Grey Sulphur Springs, Va. wishes us to advise him, to whom he shall apply, at Paris, for Rohan potatoes, and fruit trees. All of these we can furnish to Mr. Legare, as we are growing them all for sale in our grounds; but if Mr. L. is particularly desirous of obtaining them from France, we recommend that he apply through Messrs. Vilmorin, Andrieux & Co. Seedsmen, Paris. As to the character of the Rohan potato, we have no hesitation in saying, that, according to the seed sown, it is far the most productive of any variety we know. We cannot judge so well of its quality for the table, never having tasted of but one. We should class it *second*, though others class it *first*, among our good northern potatoes.

Clover Seed—John Young, of S. Carolina, asks information as to the best method of separating clover seed from the chaff. This operation is performed, at the north, after the heads have been beaten from the stems with a flail, by machines, propelled by water, horse, and sometimes by manual power. There are several kinds of machines used for this purpose. Burrall's, (see Cultivator, vol. II. p. 130.) with the attendance of one man, cleans from 16 to 32 quarts of seed in an hour. Price of machine $60.

☞ We beg leave to observe to our brethren who conduct agricultural journals, that the "Hints to young Farmers," are original in the Cultivator—and that *we* design to quote or credit what we borrow from others.

The conqueror is regarded with awe; the wise man commands our esteem; but it is the benevolent man who wins our affections—he alone is beloved.—*Fr.*

Gaming is the offspring of avarice and the father of despair.—*Fr. Prov.*

CORRESPONDENCE.

Climate, &c. of South Florida.

NUMBER TWO.

Key West, July 4, 1838.

The soil of South Florida, especially at the cape, is generally considered the very essence of barrenness. The process of reasoning is, that inasmuch as it will not profitably produce those crops which our fathers were accustomed to raise, it is therefore good for nothing. It is true that in that vicinity there cannot probably be found more than five or six acres in any one body, of a similar character to the rich soils of the north. And these small spots are so few and far between, that if they were indeed the only valuable lands in the country, the whole of it, as General Jessup fretfully says, had better be surrendered at once to the savages and wild animals that now roam there. But happily there are many people of intelligence who would be glad to purchase these worthless lands of the government, and become actual settlers on them for life; leaving to those who are content to follow the footsteps of their predecessors, the privilege of thronging "westward ho!" to raise wheat upon the luxuriant lands of Michigan, or cotton in the speculator's paradise of Texas. And these people esteem it a blessing that neither sugar nor cotton can be profitably cultivated in the country which they have chosen before all others for their permanent homes.

The face of the the country is diversified by ridges of pine land, intervening dry savannas, occasional hammocks, and the wet prairies of the everglade; each of which divisions I intend to describe as particularly as possible. The substratum of the whole country is a solid bed of limestone of unknown depth, but so soft as to be easily broken and dug up by a pick axe, or hewn into form by any suitable instrument. It becomes much harder and white by exposure to the atmosphere.

The pine ridges are the most elevated parts of the country; but I suspect they are nowhere more than twenty feet high. the timber is a kind of pitch pine, with straight small trunks, and irregular branching tops. Their general heighth, were I to venture a *guess*, cannot be more than seventy or eighty feet; and the largest of them do not exceed two feet in diameter. Their trunks are free from limbs, and the ground is entirely unobstructed by underwood, and clothed with grass; thus affording extensive natural pastures for grazing animals, and beautiful fields for horse-back riding, hunting and other amusements. The indigenous grass of the country is not the best that the soil is capable of producing. The Guinea grass has been growing there for many years, and thrives to great perfection. The soil is in some places deep enough to admit of ploughing; but in others it is so shallow and stony as to prevent even the use of the hoe.

The savannas, lying between the pine ridges, are in some places clothed with a thick stout growth of rank grass; and in others, with a more thin and stinted kind, indicating a poorer soil. But what the soil is, I cannot say, never having examined it. These savannas are generally dry, though they are subject to occasional inundations, for a few days in the rainy season, by the fresh water from the everglades. As the glade rises, its surplus water runs over into the valleys, in which it is dammed up by a pine ridge; in some places but a few rods in width, running along the shore of the bay. Behind and parallel with this ridge, for ten or twelve miles in extent, lies a savanna connected with these, which receives the overflowing waters. In all these valleys the water stands until it can find its way to the bay through underground channels, which are not sufficient to conduct it off as fast as it accumulates.

These facts naturally suggest the important inquiry whether the dyke which dams up the surplus waters might not be easily cut away—and if so, whether the current of water which the opening would create, would not of itself wear a number of channels deep enough to admit water at all times of the year, to pass from the glade to the bay. But admitting that artificial streams may not be furnished so easily, it is reasonable to suppose that some such can be made with no great expense in digging away the obstructions which the water alone may not be able to remove. Thus water power would be created in various places along the shore of the bay—the very points at which it would be most useful.

The wet prairies of the everglade would also by this process, in a great measure, be reclaimed, thus rendering large bodies of valuable land susceptible of cultivation, which otherwise would remain useless. These prairies, in some places extend further than the eye can reach, and are so uniformly level, that by lowering the waters of the glade not more

than one foot, immense tracts of them would be fully and permanently drained. Though these results are as yet uncertain, they are sufficiently probable to command the attention of the public, and to justify the consideration here given to them.

The hammocks are clusters of dense wood land of live oak, mastic, wild fig, dogwood, gum elemi, cabbage palm, and various other kinds, with an undergrowth so thick as to be almost impenetrable. They lie generally on the borders of streams or fresh water springs, to whose enriching moisture they perhaps owe their existence. The soil contains an abundance of vegetable matter, and in some places, a suitable mixture of clay, sand, and lime to constitute a rich loam. More often, however, it is merely sand and vegetable mould, which, of course, by constant and careless cropping, soon loses its richness. It produces abundantly all kinds of garden vegetables, which are about all the inhabitants have yet attempted to raise. On these lands also abound the red mulberry, and an indigenous species of the grape, which is said to be very good, as well as various other kinds of wild fruit of but little value.

Such being the character of the soil, the reader will naturally ask,—what are the inhabitants of such a country to do for a living? I proceed to answer.

1st. The manufacture of the Florida arrowroot has been, and always will be, a profitable business for the residents at the cape. It grows abundantly and spontaneously upon the very poorest of the sandy pine lands. Indeed it is so very unassuming and modest that it will not grow well upon any other; but it seeks and thrives best in the purest white sand where nothing else will grow. Neither does it ask any favors of man for its planting or cultivation, but freely invites him to the harvest after it has planted and raised itself. The seed which is unavoidably scattered by the process of gathering the roots, produces a new crop, better and more plentiful than the first. This improvement is probably the result of the cultivation effected by pulling the roots. It is manufactured with very little trouble. Many families are accustomed to grate it upon a tin grater, and prepare it in the same manner as potato starch is made; and thus they realize a decent profit. At the commencement of the war there were two mills in the vicinity of the cape, each propelled by a single horse. By the aid of such mills, I am informed by those who have followed the business, that five men with a horse and cart, can dig, gather, manufacture, make the boxes, and pack ready for sale, four hundred pounds of arrowroot per day. The price of the article is yet unsettled. It has varied at wholesale in this market from six to sixteen cents; and it is the opinion of our most intelligent men that the demand for it will increase, as its value becomes more generally known. Now, after making liberal allowances for the price it will permanently have, and the expense of manufacturing it, there can be no question that it will afford a handsome profit to all who may turn their attention to this branch of business. If then the white sands of Cape Florida will spontaneously produce valuable crops, why are they inferior to the rich wheat lands of the north, on which man is doomed to earn his bread by the sweat of his brow at incessant toil? and why are the former called poor, and the latter rich? The proof of a soil is not in the name but in the produce.

2d. There is much reason to believe that the making of silk, may become a good business in South Florida. The native mulberry abounds in the hammocks, and will grow well in the pine lands. The white and the Chinese mulberry have both been introduced here, and have found a genial soil. And as we have no frost to destroy vegetation, the silk culturist may follow his business during the whole or nearly the whole year. It is true that this is yet an untried business with us; but it would seem that if it can be made profitable at the north, with only one brood of worms in a year, it may become more so here, even with very liberal allowances for unforeseen difficulties. I am not aware that any method has yet been discovered, to obviate the supposed necessity of keeping the eggs through a northern winter before they can be hatched. But while I confess my ignorance on this point, I cannot believe that such a practice is necessary. It is unreasonable to suppose that eggs of worms raised where there is no winter, will not hatch in due course of time. It must be that a few well directed experiments, in this climate, will disclose some mode of keeping up a constant and immediate succession of broods of the silk worm, sufficiently regular and perfect, to render the silk business much more profitable here than at the north. Mr. Charles Howe, of Indian Key has made a few cocoons, from northern eggs, which are said to have been of a good quality. He found no difficulty in keeping the eggs from hatching during the summer as long as he pleased, or in hatching them whenever he chose to expose them for that purpose. But on *one* occasion he exposed fresh laid eggs, as he had been accustomed to do his old ones, and they did *not* hatch; and whether he pursued the experiment I am not informed. If, however, the silk worm can propagate its species in this climate, which cannot be doubted; and if we can prevent its eggs from hatching as long as we please—and experiment has proved that we can—we are very near to the wished for discovery, if it has not already been made; and we may calculate with confidence upon the silk business becoming a profitable employment in this country.

3d. The raising of tropical fruits must in a few years become another profitable branch of business here; and we shall be under no apprehension of disasters from frosts, which have proved so fatal to the orange trees at and about St. Augustine. Neither can we fear that this branch of business will ever be overdone in Florida, when we consider the limited extent of territory in which it can be followed, and the numerous markets which the northern states afford. While man has an appetite for the good things of this world, the inviting fruits of the south will always be in demand, and will necessarily command a price sufficient to insure their production and their transportation to market.—Some little time will be necessary to raise the trees; but when this is done, a certain and easily earned income is the inevitable result.

4th. A new branch of American agriculture or manufacture is about to be tried at Cape Florida by Doctor Perrine, late American consul at Campeachy in Mexico. He is sanguine in the belief that the culture of Sisal Hemp, will soon become not only a source of profit to individuals engaged in it, but also of great importance in a national point of view, in supplying a superior article of cordage of every kind and size for our shipping; a cheap, and strong material for the manufacture of every quality of cloths from the finest linen to the coarsest cotton bagging. The doctor is well acquainted with this subject, and has spent several years in preliminary preparations for commencing this business; and people of intelligence to whom he has exhibited specimens of the article—the mode of manufacturing it—and the nature of the plant from which it is obtained, are strongly impressed with the belief that he must inevitably succeed in this great undertaking.

The worst description of land in South Florida—that which is even inferior to the white sand which the arrowroot lays indisputable claim to—is the very soil in which this hemp plant, or properly speaking, the agave, best thrives. Indeed this soil to which it is natural, cannot properly be termed soil at all, for it is little else than stone. This species of rocky land is abundant in this section, particularly on the thousand islands that everywhere surround us, and the extreme limits of the main land. Should this branch of business be found profitable, our Florida archipelago, long the dreaded hold of piracy, and now wild and waste, will soon swarm with a useful and industrious population, and become a paradise indeed.

For the purpose of aiding the doctor and his friends in this undertaking, in connection with culture, and acclimation of tropical plants in general, the legislature of Florida, last winter, incorporated a company with a capital of $50,000, entitled the Tropical Plant Company of Florida. Nothing now delays the commencement of operations except the Indian war. Indeed the doctor had already growing in boxes near Indian Key, several hundred foreign plants ready to be transplanted at any moment.

Besides these distinct branches of business, a few people may profitably engage in the sawing of lumber. For this purpose a gentleman expecting to settle at the cape, now contemplates the erection of a steam mill there, in case suitable water power cannot be found. The settlers may readily be supplied with building materials, so indispensable to all countries in the progress of improvement.

Furthermore, there are numberless auxiliary means of providing the necessaries of life in this country. An abundance of fish, turtle and oysters may be had at all times, merely for the trouble of taking them. Turtle on this coast supplies the place of beef at the north, and it is just as common. They are caught in great numbers and put in enclosures, and fed on grass; whence they are taken and killed as occasion requires. Horses, cattle, and sheep ask no favors of man whatever; but give them their natural and inalienable right of "life, liberty, and the pursuit of happiness," and they will "multiply and bring forth abundantly in the earth;" and then if man choose, they may be made to supply his table or his pocket with the needful. He need not labor in the heat of the sun to make artificial pastures for them in summer, and provide a mountain of hay for their winter store; nor need he brave the piercing cold, for eight long months, in dealing out to them the treasured produce of his summer toil. No—nature obviates this necessity in tropical Florida, and freely feeds upon her verdant bosom the animals she has given to man. Garden vegetables, too, which ought to constitute the principal portion of our food, are raised with surprising little labor. Peas of an excellent quality, grow abundantly on bushes like northern currants, and bear continually. They have also a superior species of white bean growing upon a vine, which though it would be annual at the north, is perpetual here. When once planted it is planted forever. A man might live comfortably on vegetables alone, without devoting to their cultivation more than one day in a month. Sweet potatoes alone might furnish half his constant food, and still be considered a luxury. They who have only eaten them at the north, can have no idea of their true value in their native clime. They will not keep good like Irish potatoes, but generally spoil in a short time. When fresh, they are often exclusively eaten for an entire meal, though the table be well supplied with other kinds of food.

There is another valuable vegetable now growing to perfection at the cape, which not only *may* constitute the greater portion of one's food, but actually *does* furnish almost the entire subsistence for the negroes on the plantations of Cuba. I mean the plantain, of which there are four species. The plant itself is extremely beautiful—fifteen to twenty feet high—leaves, five to ten feet long and one and one-half to two broad—thin, soft and silky in their texture, and of a deep, glossy, green colour. The banana and one other species, bear only one large bunch on a stalk. But it is indeed a large one—as much as a half grown boy could well shoulder, and weighing often times over sixty pounds. In shape, the first resembles the cucumber—about five inches in length and one and one-half in diameter; and from one hundred to two hundred of these grow in a bunch, as closely as they could be packed in a basket. They are covered with a thin skin, which when the fruit is ripe, may be peeled off with the fingers as easily as if it were a paper envelop. The food is then ready to be eaten from the hand, and consists of one solid mucilagenous pulp—mild, easy to digest, and inviting in its flavor. The banana is more fruit than food; but the plantain is more food than fruit, and is generally cooked and eaten at meals.

Both species are propagated by planting the suckers that spring up around the parent stock. After growing eight or nine months, the flower puts forth, and in about three months longer, the fruit is perfected. When this is gathered, the stalk is cut down to the ground, to make room for the young plants which are growing up like a family around a fruitful mother. The first born of these is just putting forth its flower when the fruit of the parent stalk is ripe. In this order they proceed continually. But as all the stalks do not ripen their fruit, or need not be planted, at the same time, a field of plantain and bananas need never be without a constant succession of ripe fruit.

Under all these facilities for easy living, it strikes me that no one need be apprehensive of starving at Cape Florida. L. W. SMITH.

Use of Plaster on Fruit Trees—Canker, &c.

Liverpool, July 23d, 1838.

JESSE BUEL—Sir—Two of my plum trees in my garden, five years since, were heavily laden with fruit; the two succeeding years they flowered, but bore no fruit. Last year and this I dusted ground plaster over the tops, while in full bloom; the effect was they fruited well both seasons.

Black Canker, (I believe you call it,) *in plum trees*.—For about three years I have been in the habit of cutting off the limbs, or that part affected, whenever I discover any canker on them: the consequence is my plum trees are green and thrifty, while I see many of my neighbors' trees entirely killed by canker. I do not burn the parts cut off, as one of your correspondents recommends, but it may be well to do so, as some of my canker bunches contained worms. I have to regret with you that our legislature has done so little, in aid of the great agricultural interest of our state. Administration and anti-administration, all seem equally culpable in this respect. We have sent a majority of farmers to the legislature, with but little effect; they too have been tardy in legislating any thing to aid the all important business of farming: this is a no party business, and would it not, I ask, be well for all political parties to select their candidates for the legislature with more reference to this subject, who will truly represent the great agricultural interest of our state? For it cannot be doubted that a vast majority would agree with you and me that the legislature should do something more efficient to give a stimulus to the agricultural interest of our

state. It is of little use to petition the legislature, unless we have representatives at our capitol who will listen to our prayers. I observe you notify us that the three first volumes of the Cultivator are to receive a new edition. Why not include the fourth volume, so as to have all the small size in one book. I for one would like to obtain all the numbers up to the enlarged volume, and I believe others would.*

JONATHAN P. HICKS.

Culture of Spring Wheat, &c.

JUDGE BUEL—Sir—I am much more in the habit of ploughing than writing, but thought that I would make a few statements relative to raising spring wheat. I sowed about fourteen and an half acres last year; the return four hundred and sixty-eight bushels, the most of it Italian spring wheat: five and an half acres in one piece yielded two hundred and ten bushels, about forty bushels to the acre. There was some difference in the piece; it was thought by the reapers that about two acres of the piece would yield full fifty bushels to the acre: land ploughed once; except about an acre, which was the poorest of the wheat. The land had lain to pasture I should think about six years. I sold the wheat for two dollars a bushel. I believe that I could have sold ten times as much if I had had it. The rest of my Italian wheat was sown on poorer land, and did not yield so much. The return of all my wheat thirty-three bushels on an acre.

I will now state to my brother farmers what I think the most profitable way of preparing land for spring wheat, which I can do for four dollars an acre. As labor is dear it is of importance to use economy. In the first place, let about all the stones be taken off: if the land is in good heart, put on about ten or twelve loads of unfermented dung; if the land is somewhat worn, fifteen or sixteen; if it is very much exhausted, twenty or twenty-five will be all the better; this we shall make no account of; all this must be done if you sow winter wheat: plough the land once, the earlier the better, and do it well: make no bauks, as the farmers say, but let it all be turned over; that you can do for two dollars Give it a good dragging, no matter how soon: let the sheep and cattle run on it as much as they please, all summer: go over it now and then with your drag and cultivator, so as to keep the grass and weeds down: by fall, your land will be very mellow: all this you can do for one dollar more. Sow your land, as early as you can in the spring, with Italian wheat, or Siberian spring wheat, which should be very clean; which you may do in the following manner: let your wheat be put into a tolerable strong brine the night before; put about a bushel in a box, or tub; put in as much lime or plaster as you can make stick to the wheat; lime is rather the best: if the land is rich, sow at least two bushels to the acre: I sowed ten rods of my piece two and a half or three bushels to the acre: the wheat was monstrous, and I could not perceive but that it was just as plump as any part of the field. I should think that the return of an acre of such wheat would be at least sixty bushels. As I stated, sow as early as you can: after sowing, go over your land both ways with the cultivator, and once with a fine patent drag: if the land is dry, let the roller pass over it once; this you can do for one dollar more, which makes four dollars an acre, about half the expense of preparing land in the old way for winter wheat. Your land will then be as mellow as ashes. If you have done the work well, you may calculate for about forty bushels an acre the first year. After harvest, as soon as you can, you may plough the same land again, turn the stubble all under, which will be a pretty good dressing for the land. I practice what I call a foot on my plough, to prevent it from clogging up, a piece of wood about eighteen inches long, perhaps six wide and four thick, with a mortice in the middle near the end of the beam, with a wedge the upper and under side; it will crowd the stubble down before the point of the plough, and you will plough it about as well as if there was no stubble there. Drag your land once or twice in the fall: sow it the next spring, in the same manner as before: you may then calculate for about thirty bushels an acre. I would also recommend to sow the same ground the third year,† in the same manner: you will be likely to get about twenty bushels an acre. Seed it down the third year with clover, if you want it for pasture; if for meadow, clover and timothy: in about three or four years more you may plant the same land again. Perhaps it would be better to put different sorts of spring wheat every year; I have sown five different sorts of spring wheat this year; I have the Italian bearded, the Italian bald, the Siberian, the old white chaff, and a sort that I call the Syracuse wheat, said to be a great yielder, sixty-two pounds to the bushel: the season was remarkably wet; and this season I began to sow the thirteenth of April and finished the twenty-fifth of May. I thought I should not have half a crop for a long time, but lately it has done remarkably well: if the remainder of the season should be good, I should think the crop would be abundant. I have but little doubt but that, in the great wheat growing districts in the west, where the winter wheat begins to fail, or on the rich prairies, that the Italian or Siberian wheat would yield forty or fifty bushels, in a common season, where the work was done well.

One thing more, Judge Buel, and then I have done. I have read much in the Cultivator and Genesee Farmer about bone manure, but how shall we prepare it? It has been said that it could be ground in a plaster mill: accordingly I collected a number of bones last summer, carried them to Ithaca eighteen miles; the man said that he thought that he could grind them, and he would take pains and do them well, in a short time: I sent after them by my son: he informed him that it took him about half a day, with another hand with him, and he could not afford to grind them short of ten or twelve shillings a bushel; and they made such a smell the people wondered what he was about in the village; but he charged me only twenty-five cents a bushel.

I have lately heard that to mix a little lime with straw, as you thresh it out, will make it rot very soon. I should be glad of some information about that. I would also inform my brother farmers that wish to raise the Italian spring wheat, that it is likely I shall be able to supply some of them with seed this year: I expect to thresh my wheat with a machine this year, immediately after harvest: I shall clean it twice over, in a first rate mill, and make it very clean for seed: it is likely that I shall have a thousand bushels, if the rest of the season should be favorable. Any letters addressed to me, from any part of the country, post paid, will be promptly attended to: letters may be directed to Jonathan Edwards, town of Virgil, county of Cortland, state of New-York. Perhaps I have written more already than you will be willing to print, or your readers will have patience to read. You are at full liberty to leave out any part, or the whole of it, as you may think proper. I subscribe myself yours sincerely.

JONATHAN EDWARDS.

Cheap Horse Power and Thrasher.

Butternuts, July 20th, 1838.

SIR—Farmers are aware of the loss of time and labor attending the practice of thrashing with flails: and thrashing machines would be more generally introduced were they not too expensive for the means of most of our farmers; for this appears to be the principal cause why they do not provide themselves with them. We have a machine and horse power, built by our neighbor, Mr. Botsford—cost fifty dollars—which will thrash one hundred bushels of wheat in eight hours, attended by three men and a horse. We have done our thrashing with one horse, but two or three may be attached if necessary. The machine may be attended to very good advantage by a man and boy. It has been examined by several farmers and mechanics of our vicinity, and has uniformly met their approbation. There are several of our neighborhood who will each have one built the ensuing winter. Any kind of machinery may be attached to it capable of being propelled by one, two or three horses. We want a machine for shelling corn, which may be attached to it. Can you direct us?* Very respectfuly yours.

NELSON B. PEARSALL.

"Where did he get his Education?"

Lake C. H. Ia. July 15th, 1838.

J. BUEL, Esq.—Dear Sir—This question, which has so often been applied to the writer of this article, has just been brought forcibly to mind by (for the first time) reading in your first volume, an address to young men, in which occurs this golden morsel:

"*Although we may be learned by the help of others, we can never be wise but by our own wisdom.*"

That is our own exertion. There is also another article in the same volume on "Self-Education," by John Neal; which is worthy of a republication in every paper in the union.

It is a settled point that some of the wisest men who have adorned our country were self-educated. Mechanics and farmers *have* "found time" to acquire a useful education. Every one of them *can* still find time for the same purpose, if he will. It is self-exertion that acquires self-education. Who that perceives that the knowledge which his neighbor possesses, and which gives him such a decided advantage in the world, is within his own reach, that will not extend his hand for the golden treasure?

What shall we do to incite young men to exert themselves to procure an education by their own exertions? For they can no longer depend upon government. Not one half of the states have even provided for the lowest grade of schools. And in those where the common school system is in the best operation, what except the veriest rudiments, the mere A. B. C.'s of useful knowledge, can be learned.? 'Tis true this is a good foundation, but we want something to incite the community to add those elegant superstructures which ornament the world. We should have, we can have, shall I add, we will have, in every county and principal town in the United States a well founded agricultural school, in which young men and girls can acquire such an education as will be USEFUL. Not a piano, French, Spanish or flower daub education, but one that will make the men scientific farmers and mechanics, and intelligent public officers and *acting* legislators, and the women fit to become the honored and husband-honoring wives of such citizens—who will never be ashamed to tell their daughters, that they obtained the education that has ever since rendered them ornaments to society, in a manual labor school, where, by their daily toil, they earned their daily acquirements. But let not toil be construed slavery or drudgery, for that never should be in any family, and much more in a school. Useful and healthy labor, judiciously applied without slavish toil, should afford all the necessary means of enjoying life. If ever the false pride of labor hating, and the false and foolish, and for all practical purposes of life, the present prevailing system of fashionable education is improved, it will be by such schools. There is evidently a growing disposition towards improvement in the agricultural community; but until that disposition has grown to a greater maturity, the great ends and objects of the pioneer friends of improvement cannot be brought about. Would not the foundation of "An American Society of Agriculture," be the means of increasing the little band of pioneers now in the field, until every town boasted of its useful agricultural school, and every legislature its majority of agriculturists, who would feel proud of being dressed, and elegantly too, in American silks and broadcloths?

Such a body of men would not need to be petitioned, year after year, before they would enact laws for the purpose of preserving, improving and strengthening the base upon which rests the whole superstructure of civilized society. Fearing I am falling into a popular error, a tedious, lengthy list of words, I close abruptly. Your friend.

SOLON ROBINSON.

The Cotton Culture, and its Profits.

Marlborough District, S. C. July 15, 1838.

J. BUEL, Esq.—A friend has just handed me the Cultivator of December, 1837, with the request that I would answer the following questions, propounded by your Princeton, (N. J.) correspondent, on the culture of cotton, &c.

Question 1. *What soil and climate is the most suitable for cotton?*

Answer. The first branch of this question would be difficult to determine conclusively, there being almost as many different opinions as you would find planters. But for myself I should prefer a mixture of clay and sand in equal proportions, and for these reasons: Such a soil has the power of absorbing both heat and moisture in a greater degree than where clay much predominates; the young and earlier growth of the cotton, hastens more rapidly to maturity (which is a matter of the first importance)—is more easily cultivated—and is more certain in obtaining a *stand* with an unfavorable spring. The climate most suitable for the growth of cotton, is between 30 and 35 degrees.

Question 2. *What kinds of seed are found in the southern states to be the most productive and profitable?*

Answer. For upland or short staple, the Alverado or Petit-Gulf is preferred, as being easier gathered, yielding more, and having a longer and stronger staple than the green seed and other varieties. I know not of any particular kind preferred by the Sea Island, or long staple planters.

Question 3. *What is the best method of, and the best time for planting?*

Answer. The usual method is to drill upon the bed with a very simple plough made for the purpose, of a piece of timber a foot and a half in length, and from one inch and a half to two inches thick, and a foot in width; there is then attached another piece lengthwise on the centre of its bottom, so as to make the drill from two to two and a half inches in depth and width at top, sloping to a half inch at bottom, with two handles, a beam and helve, and the plough is complete. The reasons why the drill is so made are these: it gives sufficient space at top for the seeds to enter, without requiring the sower to stoop too much; and at the same time brings them to a narrow compass at the bottom, which is a very great advantage

* The three first volumes are re-printed on a page to match with the fourth, of which latter we made 25,000 impressions, so that the whole may be had bound together, or in two vols.

† Bad! Bad! Very bad! 40—30—20!

* Yes—to Thorburn's, Albany.

in after culture—enabling you to plough nearer, and thin out with much more regularity and exactness.—After the seed is sown in the drill it is sometimes (in very stiff lands,) covered with a small harrow; but when the soil is light and will permit it, a plough similar to the one above described, without the longitudinal piece at bottom, answers very well the purpose. The best time for planting will much depend upon the land and season. The usual time in South Carolina, is from the first to the tenth of April. Farther south they plant a little earlier.

Question 4. *What tillage must precede and succeed the planting? can two crops be made in a season?*

Answer. It is necessary that the land should be well pulverized, and the bed of an even and uniform height. The distance between the rows and height of the bed, will depend entirely upon the fertility of the soil and its location. For some, three feet distance is sufficient; and in others, six is not too much. In the drill it may be crowded very thick, say from six to eighteen inches—but it is indispensably necessary to give it sufficient space the other way—light and air being all-essential in every stage of its growth. When the cotton is fully up to what is called a *stand*, a hoe from six to ten inches in width, (the size depending on fertility of soil) is passed through it, leaving three or four stalks at a place. This *chopping out* as it is termed, is immediately preceded or succeeded with the plough. This ploughing is not a deep one—it is chiefly intended to stir the land a little, and throw whatever young grass may have come up on the beds into the furrow, thereby lessening the work of the hoe very much. The next working with the hoe, is an exceedingly important one. It takes a very skillful and experienced *hand*, to do an hundred rows, an acre in length, as it should be. The bringing it down to the permanent *stand* is tedious; and very much so if it should be a little grassy, (as it is but too apt to be at this stage.) The plough immediately follows and dirts the cotton, cleaning out the entire space between the rows, leaving it in beautiful order and appearance; the plant now having four leaves. This routine is continued throughout the whole season. The culture should be continued (at least with the hoe) until the middle of August; it is sometimes necessary to extend it even beyond that period, when the spring is very backward, and the fall very wet. The kind of plough used is of cheap and simple construction. Our own blacksmiths and carpenters are usually the manufacturers. Two crops cannot be obtained in a season; for I believe there is no portion of the vast cotton growing region, from the Sabine to its utmost northern limits, in which it is not occasionally cut short by the frost.

Question 5. *When and how should it be gathered, and how can it be most expeditiously cleaned, pressed and prepared for manufacture or exportation?*

Answer. It should be gathered so soon as it commences opening; and with the hand. The labor of gathering and preparing a full crop for market, is nearly equal to its culture. Surely not so heavy, but tedious; and nothing can be done at it in wet weather. The season too is not congenial to the disposition of the negro; he is sad and spiritless at a temperature that you would feel but comfortable—whilst his most joyous peals of laughter would be heard under the scorching rays of a meridian sun. It is cleaned with a gin, (Whitney's invention) cheaply and expeditiously, either by water or horse power, from 1000 to 1500 pounds of clean cotton per day; and then packed with a heavy wooden or iron screw; and so it leaves the planter's hands.

Question 6. *What is the fair average yield; the cost of culture, of bagging, of machinery, &c. the nett profit per acre? A numerical statement is desirable.*

Answer. This question I cannot so fully answer as your correspondent desires. It would be difficult to graduate so many items of expense to a single acre—and ascertain its nett profits. The following statement however, is not far from the truth; it is at least a safe one.

Average yield per acre (clean cotton,) 150 pounds: cost of culture, $6: cost of machinery, 12 pounds of cotton: cost of bagging, rope and twine, 75 cents. Nett profits can be ascertained from price of cotton.

Question 7. *To what diseases is the cotton of our country liable, and how may they best be remedied?*

Answer. The diseases to which our cotton is most liable, are the *rust* and *rot*, for which we have found no remedy. The *rust* attacks the leaves, and causes them to shed off. The *rot*, the bowls, and effects them as its name indicates. There are various and conflicting opinions as to the causes of these diseases, which are useless to enumerate, as I believe they are not understood.

I have thus attempted briefly to answer the *queries* of your correspondent, which may appear unsatisfactory. But sir, if you have any idea how little of science or of skill is used in perfecting a cotton crop, you will agree with me that but little can be said about it, except in the way of pointing out its abuses, and suggesting remedies for its improvement. There never was a wider field for agricultural science to exert its beneficent effects, than on the cotton growing states of the south. With a soil fertile in the extreme—and operatives the most cheap and efficient in the world—commanding a staple which gives vitality and existence to industry in a thousand forms—in almost every portion of the universe—they have scarce as yet progressed one step towards improvement. The land is tilled as if its sources of fertility were inexhaustible, and with the most prodigal waste of the choicest and richest blessings, that an all-wise and beneficent Providence could confer. The system (if the term can be applied) is a most suicidal, and ruinous one; it is exhaustion—exhaustion—continual exhaustion, without any return. If you should meet with an exception, as (you sometimes would) it but shows in more glaring colours the prevailing practice. To sow a rich field in January or February with oats, reap them the first of July, and plant down in corn, I have known to be done by those who were esteemed good planters. To plant the same field in cotton or corn for years in succession, is very common, and that too without one load of manure. And if it should be changed it is not for the better. If it will bring any thing at all, it will never do to let it lay out,—and so it is thickly sown in oats; after being reaped clean, (the temptation cannot be resisted) all the hogs, horses and cattle must be turned upon it, producing the most injurious effects. This is sometimes called resting land. What, sir, do you think of it? I mean always to be understood as speaking of the prevailing custom. There may be found (as I have before observed,) a few honorable exceptions in every district of country, and if I am informed correctly, the farther south the fewer. No excuse can extenuate so wretched a system; its parallel is not to be found in any age or country. We need not be told of the energy and enterprise which stimulates a young and vigorous people—that the age is one of rapid and incalculable progress—that its spirit is not to be checked or stifled by the cold and formal rules of science and system. But it is here we can trace the source of the very worst system of agriculture that can be imagined. It is to this headlong energy and enterprise, strengthened and quickened by the insatiable desire of gain, which is laying waste, as with the hand of the destroyer, the entire cotton growing region.

Yours respectfully,

A COTTON PLANTER.

On the Gearing for Working Oxen.

J. Buel, Esq.—Dear Sir—In perusing the April number of the Cultivator, which came to hand but yesterday, I was greatly pleased with a communication, made by Mr. David Allison, on the subject of "Yokes for Oxen."

Although, within the last twenty or thirty years, some improvements have been made in the gear and harness of working animals, especially in those for horses, yet it is believed that some may even yet be made, and particularly in those for oxen.

Humanity, as well as self-interest, would induce a desire in every *rational* owner of laboring beasts, to make their working gear in such form, and of such materials, as would be most convenient for the animal, the most accommodating to the form of his body and natural motions, and attached to him in such a manner as to enable him to exert his strength to the best possible advantage of his master, and the least irksome to himself.

As to the ox, the author of nature seems to have placed the seat of his strength in his head and neck. To these parts, therefore, reason dictates the propriety of attaching his working gear. The question then arises, of what materials, and of what form, shall this gear be constructed, and in what manner attached to him?

In our country, the uniform gear or harness of this useful animal has been, and yet is, the yoke and the bow. In remarking upon a usage so long practised by our fathers and grand-fathers, I would speak with diffidence, while suggesting reasons for my objections to this mode. Where, I ask, can be found an experienced farmer, whose better feelings have not been pained, by seeing the galled and swollen neck of his patient ox, occasioned by the chafing and pressure of the yoke and bow? And how frequently bloated by the obstruction of his breath, caused by the same pressure! If the feelings of the master, on such occasions, are pained, how great must be the sufferings of the poor animal, while compelled to press his neck, swollen and sore with raw cracks in his skin and flesh, against his wooden yoke? The peculiar form of the neck of the ox is such, that it is impossible to construct a gear of wood, or of any other rigid *material*, which shall come in contact with, and bear equally upon, every part of the neck. The perusal of the well written and interesting communication of your correspondent, Mr. Allison, has induced and emboldened me, to offer you this article. He closes by observing—"I have heard that there are modes of bringing the draft on the head instead of the shoulders, practised in the Spanish provinces, the particulars of which I should gladly become acquainted with."

I take much pleasure in stating what I learned on this subject while residing in Spain, nearly two months, in 1828. I embraced every opportunity afforded me to become acquainted with whatever came in my way relating to the agriculture of that kingdom. As the uniform mode of their harnessing or gearing their working oxen was new to me, I took more particular notice of it, and examined it more critically. I had many opportunities for seeing their oxen work, as well with loaded carts on the roads, as at the plough in the fields. Upon the whole I could not resist the conviction that the Spanish method of harnessing their working oxen, is, in all respects, preferable to that which is practised in our country. I will endeavor to describe it, and suggest such reasons as operated with me in support of my opinion.

The draught is wholly by the head, to which the gearing is attached. The yoke for a *pair* of oxen differs but little in its length, thickness and form, from that in use with us. No bows, ring-staple or ring are connected with it. The curves of the yoke, where it rests upon the necks of the oxen, are somewhat deeper, perhaps, than those of ours. On the front side of the yoke, two square staples of iron are placed for each ox, eight or ten inches apart from each other, corresponding in point of distance from the end of the yoke and from each other, with the location of our bow-holes. To the inner staple for each ox, a band of strong leather is made fast by stitching. This band is sufficiently broad to fill the space between the swell of the eyes and the but ends of the horns, and is brought round the front part of the head and fastened by a buckle connected with the outer staple. In some instances this band is lined by another piece of leather, with a thin padding, quilted in between the two pieces, in order to render it more pleasant and easy to the head—though I never saw any appearance of chafing or other injury done to the head by the band. The yoking and unyoking are performed with great facility and expedition—it is only to buckle or unbuckle one end of a single strap for each ox.

By this mode of gearing it will be seen that the application of the power of the ox, exerted in the draught of the load, is at the head. As it respects the advantage or disadvantage of holding back on descending ground, I am unable to perceive any essential difference between the two modes, as the holding back in both must be done by the yoke coming in contact with the horns, and without any aid from the bows.

In conversation with a Spanish gentleman on this subject, he remarked, "By harnessing oxen in your method, and making them draw by their *shoulders*, you loose much of the strength of their heads and necks, parts wherein their strength principally lies. Our ancestors in this country," continued he, "took their first ideas about the mode of gearing their oxen for labor, from seeing the uniform manner in which bulls meet each other and fight."

Nature has instinctively taught animals where their strength lies, as well as the best manner of using it in contending with others, either offensively or defensively. The bull presents his head to his antagonist—the horse his heels, and the tiger his teeth.

The facts and reasoning of Mr. Allison are worthy of the careful attention of every farmer in the U. S.—they are *practical*. The use of the single yoke described by him, and the manifest advantages attending it, must, I think, commend itself to every one. But, with due deference, I would submit to his consideration, whether the Spanish *head-band* instead of the *bow*, might not be an improvement?

Very respectfully yours.

SAMUEL WOODRUFF.

Windsor, Conn. August 11th, 1838.

Household Economy.

Schenectady, July 27, 1838.

Dear Sir—Your Cultivator is particularly designed to promote improvements in husbandry. I presume you are equally desirous to aid housewifery.

We often hear lamentations of the loss of fat saved for making soap, by its being in an offensive and spoiled condition, and eaten by maggots—sometimes of the loss of the fat eaten by rats. None of these happen about my house; nor is the fat boiled in ley to make soft soap.

The fat, as it is saved, is put into a cask prepared, and strong ley added to it. As the fat increases, ley is added, and occasionally stirred by a stick kept in it. When the cask is full, the soap is made and ready for use.

The ley cask is filled with ashes for leeching, and drawn off to add to the soap cask, as stated above. When the ley has been drawn off, and by filling with

water and draining, it becomes weak, it is used for bleaching, &c.

When the ley cask is emptied, it is filled immediately with ashes, to be used as above mentioned, so that the cask is always in use, by which means it is kept in order, and lasts many years. When left empty, as some persons practise, it shrinks and soon becomes useless. Some quick lime put into the ash cask, near the bottom, causes the ley to be more caustic.

Cedar and white pine make the best casks for ley or soap. The pine should be free from knots and resin, as the ley will incorporate with the resin, convert it to soap, and leave the wood porous and leaky.

When soap has accumulated beyond the wants for soft soap, it is converted into hard soap, by adding one quart of fine salt to three gallons of soap, boiled and put into a tub to cool; then cut it into pieces, scrape off the froth, &c.; then melt it again, (leaving out the ley at the bottom,) to a boiling heat, and put it into a box to cool, and cut into bars for drying. A little resin or turpentine added before boiling, improves the color and quality of the hard soap.

This mode of making soap relieves from the pagan practice of boiling soap at a *certain stage of the moon.*

If you think the above will be of much use, you may give it to the public. Most respectfully,

J. BUEL. DAVID TOMLINSON.

Fence Making.

Juliustown, N. J. July 14, 1838.

J. BUEL, Esq.—Sir—As the expenses of fencing, where the locality of farms requires rails, are often great, I may perhaps advantage some of your readers, by describing a method which I find to be a saving of land, timber, and labor, when brought into a comparison with what is generally called the *worm fence.* To construct a durable and good fence, on what I call the *improved plan,* requires *straight and strong* stakes, of suitable quality, and some seasoned blocks for pins. Trunnels are not wanted. Stakes from seven to nine feet long; pins twelve to eighteen inches, suiting the size of the rails. The pins I make in wet weather or winter season, and also bore holes in the stakes, for a pin on which the bottom rails are laid; this is done with an inch and a quarter or larger auger, agreeably with the number of rails, and their weight or size, as a light or heavily constructed fence is wanted. The lower pin is pointed at both ends, and should be forced in tight, so as to attach the bottom end of the stakes and keep out wet. If for an outside, or fence to turn hogs, the bottom hole in the stakes is bored two feet from the end—if inside or temporary, where hogs or sheep are not to run, two and a half or three feet. To one of these pins, I attach two stakes, and set them in the ground at my beginning, *firmly,* twenty or twenty-two inches, and lay on a rail, the forward end of which will show where to set the next pair of stakes, and thus I lay out the foundation. If I am making a tight, standing fence, I then, on this foundation, lay three or four more rails, according to their thickness; if a meadow or inside, one or two, fitting them neatly in their lap between the stakes, with an axe, so as to have the stakes to touch each rail if I can. I then begin again at my first joint, and with a rope noosed at one end, throw it over the top, and draw the stakes tight together, and adjust the joint properly; then with an inch or larger auger, bore another hole straight through the middle of the stakes as they stand, so as to touch the top rail; here another pin is driven, which must have a head at one end, and be fastened at the other with a light nail, set a little into the outside of the stake; take off the rope when the joint is thus firmly pinned up, and thus go over the whole; when you may put above this pin just as many more rails as you please; and, if it suits you, put in a third pin on the top, or one rail below the top, which will both strengthen your fence, and prevent a mischievous beast from lifting it. A joint with three pins, not set in the ground or railed, has this aspect; the proportions between the pins being as three to two feet apart; after the fence is made, the sharp ends of the pins should be cut off, to prevent mischief.

The labor of making the improved fence, when equally familiarized to the mode, is less, at *first setting,* than cutting and splitting trunnels, and procuring the mass of timber required by the worm. To say nothing of its better appearance, I will state only the following advantages.

1st. *Saving of land.*—A worm fence requires from five to six feet in width from the foot of each outer stake; the improved fence, only the thickness of the rails, say five to eight inches. This will save acres in a large farm.

2d. *Saving of timber.*—A joint of this, (rails 11 ft. long,) reaches over ten feet from centre to centre: of the first, with a safe lap and the usual worm, quite one-eighth less; so that 100 pannels of the worm will make at least 112 to 114 of the improved fence, rating the same number of rails to each joint: but I find four good rails in a pannel to make an excellent fence against horses and neat cattle, thus saving the useless bottom rails of the worm. Trunnells also are saved, and as my fence never settles into the ground, the bottom rail of the old worm which generally comes out rotten, when new set, is always saved. I think I save more than one-third of my timber by this method.

3d. In the highest winds, I have never had a joint to blow down in the *improved;* this rates annually to the labor-saving account.

4th. In cases of *altering or moving,* the posts are taken up without unpinning, and the labor of setting them in another place is trifling.

5th. Hedges and trash, briars, &c. have no room for growth in the joints; mowing is easily performed under them, and stopping against very small pigs between the rails, is easily effected with a few poles of suitable length.

Its duration depends on the material used. I get cedar poles six or eight inches thick for the stakes—cut them in summer, when the bark slips easily, and lay them straight in heaps to season well, and I think they will last twenty years. Chestnut is perhaps better, and white oak and chestnut oak from heart logs are very durable.

Some may perhaps imagine, that this fence cannot be made with crooked rails; I have found by much practice, that I can use them better and confine them to their places better, than I can in a worm fence; straight and even rails, will make the handsomest, and perhaps the strongest fence in this, as in all others; but I think that any rails that will make other fences, may be used as advantageously in this.

Now, sir, you can, without the risk of offence, try a process of "combustion" with the above effusion; or give it to your readers, as may seem best to you.

Your ob't serv't, D. ALLINSON.

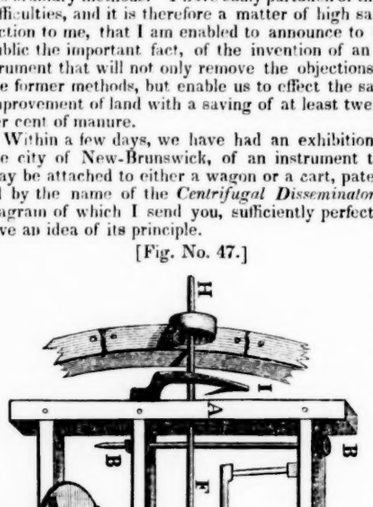
The Centrifugal Disseminator.

New-Brunswick, N. J. June 13, 1838.

J. BUEL, Esq.—Sir—I observe, in the 2d number of this year's Cultivator, an inquiry of Samuel Howard, whether there is any mode of spreading lime, at the rate of twenty bushels an acre, other than that of doing it with the hands? Mr. Howard's inquiry is that of every enlightened farmer, anxiously engaged in improving the soil by top-dressings. Their difficulties are, the uncertainty of the quantity, the unequal distribution, and the very unpleasant labor attending the ordinary methods. I have sadly partaken of these difficulties, and it is therefore a matter of high satisfaction to me, that I am enabled to announce to the public the important fact, of the invention of an instrument that will not only remove the objections to the former methods, but enable us to effect the same improvement of land with a saving of at least twenty per cent of manure.

Within a few days, we have had an exhibition in the city of New-Brunswick, of an instrument that may be attached to either a wagon or a cart, patented by the name of the *Centrifugal Disseminator,* a diagram of which I send you, sufficiently perfect to give an idea of its principle.

[Fig. No. 47.]



It spreads lime, ashes, composts, marl and plaster, with almost perfect evenness, and at the rate you will, from one bushel to one hundred. It is also calculated to sow grain and grass seed.

A company in this city purchased the patent right for the counties of Bergen, Passaic, Essex, Morris, Warren, Sussex, Somerset, Hunterdon and Middlesex, of this state; and have appointed Joseph Castner, (carriage-maker of this place,) as their agent, to sell the right to counties or townships. He furnishes the machines complete with hoppers, at twenty-five dollars.

Respectfully yours,

W. MYER.

SPECIFICATION.

In order to enable a workman to construct one of my Centrifugal Disseminators, a frame, A, must be made of sufficient strength for the work required; and consists of two uprights, with two or more girts, placed horizontally, and secured to the cart by bolts and screws, B, the upper one of which rests on the top rails of the cart, the lower girts being under its bed, to support the shafts of the revolving platform, C, which may be about four feet diameter, made of sheet iron or boards, and has radiating cleats, to strengthen the platform, and give additional force to the distribution of materials; the lower pivot of the upright shafts which pass through the centre of the platform, rests on the lower girt, D; a horizontal driving shaft, F, is so placed, that a cog wheel, G, thereon, may work into a pinion, E, placed on the upright shaft, the upper part of which is steadied by the frame. On the outward end of the driving shaft, is placed a friction pulley, H, which is pressed against the periphery of the cart wheel, by means of a lever, I, attached to the frame, by the friction of which pulley, the revolving platform is made to disseminate whatever is placed thereon, when the cart is drawn by oxen, horses or other means.

Draining—Bad practices among Dutchess Farmers.

JUDGE BUEL—Dear Sir—There is an article in the June number of the Cultivator, on the "best method of disposing of loose stones," by a correspondent in Ulster county. I think I can suggest a better "method" than the one he has adopted. There are on most farms, at least in this part of the state, wet spots, and springy places in hollows at the base of hills, and often in the middle of tillage lots and meadows, which it is difficult to cultivate to advantage on account of the coldness of the soil, occasioned by the superabundance of moisture, near the surface, and within the reach of the roots of the plants. Every practical farmer knows that the value of land is much lessened by the prevalence of such wet and cold places, besides the inconvenience of having in his fields every here and there a patch that is too wet to plough, or if ploughed and sown as is commonly done, nothing of consequence is ever reaped from them, because in the spring, or freezing and thawing weather, the grain or grass is sure to be thrown out, and of course dies. Now, to make such land dry and suitable for tillage, some means must be devised to get rid of the water, which is the cause of the evil. Draining must be resorted to in order to effect it.

The common practice is, and has been from time immemorial, to drain such wet places where the grain winters out as it is termed, to strike furrows promiscuously, so that the water may settle in those furrows and run off, so as to leave the surface partially dry. This is done after the rest of the field has been made as smooth as the harrow can make it. The practice I consider a bad one, and but a half way method of doing business. It renders the surface uneven and bad for the passage of the cart or wagon over it, and if designed for mowing, it mars that evenness of surface which constitutes the beauty and excellence of such lands, and which is the object of every good farmer to obtain, by the use of the harrow and the roller. Now, on all such wet places as above described, and which occur on almost every farm of a hundred acres in this country, I would dispose of my "loose stones" by digging trenches or drains, and filling them to within a foot or eighteen inches of the surface, so as to clear the plough. In this way, with little expense, two objects can be obtained, viz: the disposing of loose stone, and the freeing the earth of too much moisture; both of which are of the utmost importance in farming. I do not conceive that much art is necessary in forming underdrains of this description; all that is required, is to have them cut in the right places, and at the proper depths. The filling process is but a short job. I fill in this manner: take two of the longest and flattest, and set them on end with the bottoms apart so as to form a channel in the centre, with the tops leaning together, in this manner, and then fill in with others, so as to prevent them from falling. Shavings from the carpenter's shop I think the best to put on the stones previous to filling with earth; inverted sods or straw will answer, perhaps, where shavings cannot be obtained. In this way I have disposed of many loads of "loose stone," and intend to many more, having just made a beginning, enough however, to test the utility of the plan, and for the knowledge of which I own myself indebt-

ed to the columns of the Cultivator, which I have taken from the commencement.

There are many things practised by the good people of this country, which I should like to mention if it would be proper so to do; such as the neglect, by many able farmers, of their outside fences, by letting bushes, briars, weeds, and thistles grow along them; the irregularity of their division fences—laying out their lots in all manner of shapes—crooking this way to leave a piece of moist land in the meadow, (which by cutting a few trenches and filling them with small stone, might be converted into good and dry land for the plough,) and then that way, to get a patch of dry land into the plough land, &c. &c. Another error is, their leaving their barn yard full of manure through the summer, to be drenched by every shower, and exposed to the intense rays of the sun for two or three months; thus wasting and destroying in value, as well as in quantity, to say nothing of the inconvenience of getting ancle deep in filth, every time you have occasion to go to the barn. Another, which I think equally reprehensible, is the practice with many, of feeding hogs in the highway; to the total loss of all the manure they make or could be made from them, besides their liability to be run over by carriages and horses travelling the road. It oftimes requires considerable skill in the driver, to avoid being upset, or killing, or wounding a porker or two—for in riding past some rich farmers' door you will find in the summer season, perhaps a half dozen "mother pigs" with a host of young ones, quietly reposing in the middle of the street, totally regardless of the law which requires them to give half the road. If you keep the "even tenor of your way," you will be as like as not to maim, or disable for life, some one or more of the gentry, which is painful to a person of humanity, besides the anger which you are sure to incur of the owner. The best you can do in the case, is to waive your "right of way," and "pass by on the other side," and leave them undisturbed in their glory. I wish you could persuade these breeders of swine in the highway, to abandon the practice; don't you think it a bad one?

Yours respectfully, P****.

Clinton, Dutchess co. July 4, 1838.

Why are our Dutchess correspondents shy of giving their real signatures? Not certainly because they are deficient in practical knowledge. The very date, *Dutchess*, is a passport to notice; but we are sure that the writer of the above would have lost nothing, while the public would have been gainers, by the substitution of *letters* for stars, in the above signature.

Successful Application of Lime in repelling the Grain-Worm.

J. BUEL, Esq.—Dear Sir—As the least information relating to farming, may be interesting to those engaged in the business, I state, that Mr. Hardy Bundle, a respectable farmer of Greenville, in this county, informs me that last fall he sowed six acres of land with winter wheat, and fearing that the weevil might destroy his crop, he was induced to try the experiment of sowing slaked lime. He says, that while the wheat was in blossom, he sowed while the dew was on, all the field with slaked lime, except one corner, which corner the weevil have nearly destroyed; and that the remainder of the field is so heavy that he is now looking for sickles to reap it with.

Respectfully yours, C. SEELY.

Athens, July 25, 1838.

Renovation of old Meadows.

Winchester, Ct. 18*th July*, 1838.

SIR—I have a meadow which has remained undisturbed by the plough ten years; the grasses have degenerated, and it has become turf-bound, (if that is a proper expression; if not, it will probably give you my meaning.) It is a great object with me, and also with some of my neighbors, like situated, to regenerate the English grasses, and increase the quantity, without ploughing and re-seeding; as ploughing would produce a resurrection of small stone, which would cost $10 per acre to clear off. I have heard that meadows of this description might be benefitted by a sort of scarification of the sward. I shall feel indebted for any information which you can give me on this subject; whether there is any approved machine or instrument for this purpose, the best season of the year, and the *modus operandi*. I am young in the business of farming, and anxious to learn.

Very respectfully, your obedient servant,

W. S. HALABIRD.

ANSWER.—Top dress with 15 or 20 loads of barn yard manure or compost to the acre—spread and sow grass seeds—immediately scarify with Conklin's Press Harrow; then bush the whole well, and sow plaster. Do this in the month of April. Ashes *may* answer as a top-dressing.—*Cond. Cult.*

The Silk Business—A Partner Wanted.

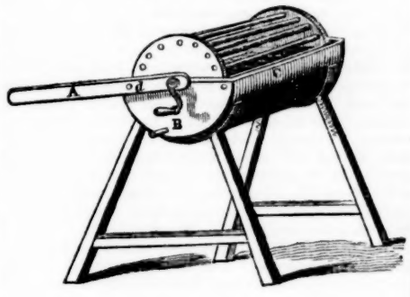
I have 1,800 morus multicaulis roots, with the growth, (most luxuriant,) of this year, for cutting and setting out next winter. I have any quantity of the morus nigra and alba, native mulberries. I have in progress of construction, a silk-house, 25 by 32 feet, 12 feet pitch, with a ventilator at top. My location is high and healthy, 60 miles north of Augusta, Ga. Land plenty and rich. This is to beg of you to make a contract with some man or woman acquainted with the business, to go and take charge of the whole affair for me, on the usual terms of joint copartners, in such business. I want to go into it largely if we find it advisable. My water power is improved and inexhaustible, and right at the spot; the soil suited by nature to the growth of the mulberry. The living is cheap and the country healthy. Rocks, granite and quartz—water, free stone. Yours truly,

J. W. D. WATKINS.

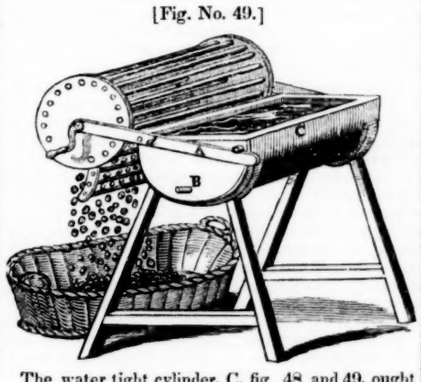
Potato Washer.

J. BUEL, Esq.—Dear Sir—Having seen in your publication of July, a description of a potato washer, I beg leave to submit the following sketch to your inspection. It is intended to represent such an one as is used in some parts of England, where a great many potatoes are grown, both for the supply of London markets with the article itself, or indirectly in the shape of pork and beef; and for a cheap article for a farmer's use in this country, (the cost would not exceed $5, if so much,) would answer every purpose for potatoes and apples, if not for turnips.

[Fig. No. 48.]



[Fig. No. 49.]



The water tight cylinder, C, fig. 48 and 49, ought to be made about 6 inches larger in diameter than the inner one, which is made say 2 feet in diameter, with round bars of 1¼ inches, and with spaces of 1 inch between, and is hung on two moveable bars, A, Fig. 48, which when the cylinder is to be emptied of its contents, are to be turned over, as in fig. 49, on a pivot at each end at *d*, and a small door, formed by a few of the bars being fastened together with end pieces, hinged and hasped as is represented in fig. 48.

The hole B, is used for emptying the larger cylinder of water, (in which the filled small cylinder is turned, till the contents are sufficiently clean,) when too dirty for farther use. I am your well wisher,

Lockport, Aug. 1, 1838. J. E——D.

EXTRACTS.

On the Best mode of Applying Manure.

[It takes a long time to eradicate deep-rooted prejudice, or to change long established practices in husbandry, however inconsistent they may be shown to be, with sound sense and experience. The unreflecting or unenlightened farmer knows, that a certain process, to which he has been long accustomed, is likely to produce a given result. All beyond this is, with him, doubt and uncertainty; and he is extremely tenacious of old practices, lest any change should subject him to the charge of previous ignorance, or of copying after those who he is loth to admit are wiser than himself. It is to these considerations that we impute the reckless indifference which yet prevails in regard to the economy of manures. The old system was, not to regard this primary source of fertility; or, if applied to the soil, to allow at least a moiety of the value of it to be wasted by fermentation and exposure, before it was incorporated with the soil, or fed to his crops. The first innovators upon the old system, Young, Cooke, &c. aware of the strength of prejudice, and afraid of innovating too far at once upon old customs, ventured to recommend only a *partial* fermentation of yard dung, before it was applied to the soil; thus allowing a considerable waste of its fertilizing properties. The writer of the article inserted below, Mr. John Baker, of Nassau Cottage, Leeds, Eng. has had the courage to break through all the trammels of prejudice at once, and to apply his dung in its most recent state; and from an experience of twenty-five years, he has been able to demonstrate, from experiments upon a broad scale, that he doubles its value to his lands by the practice.

So far as a twenty years experience has enabled us to judge, unfermented dung, applied in the spring, spread broad-cast and buried in the soil, and to an autumn ripening crop, either in the field or garden, has never failed (but once, in a protracted drought, applied to a ruta baga crop,) of proving beneficial—we think as highly so as an equal quantity of muck dung; while we feel confident, that by applying it in this state, we have doubled its intrinsic value, over what it would have been if it had summer-rotted in the yard. We cannot but indulge the hope, that the perusal of Mr. Baker's communication will induce some of our old fashioned farmers to adopt his plan, or at least so far as to test its utility.]

[*From the Edinburgh Quarterly Journal of Agriculture.*]

PARTICULAR MODE OF APPLYING FARM-YARD MANURE. By JOHN BAKER, of Leeds.

"The present depressed state of agriculture through the kingdom, invites the serious attention of all connected with that important branch of industry; it being a lamentable fact that, whilst the most splended discoveries in science are daily applied to the improvement of our trade and commerce, agriculture, as a science, remains almost stationary, notwithstanding individual and national prosperity are so deeply interested in promoting its welfare. For more than twenty-five years I farmed from 500 to 1000 acres in the county of Norfolk, during which time my attention was carefully directed to the consideration of every method or system of farming which was calculated to increase the productiveness of the soil, and to improve the condition of that numerous and industrious class of persons who are dependent upon it. The proper use of manure is amongst the most material improvements which I have discovered. By the common, I may say general, mode of managing it, only half the benefit which ought to be conferred on the crops is given, whilst the system which I have adopted doubles the value of all the manure made, and at the same time it really lessens the expense; and it is to this point that I will confine myself in this paper. That "the muck-cart is the best farmer," is a maxim as fully acknowledged as it is oft-repeated, and believing that upon the proper use and application of it the success of the farmer mainly depends, I have never failed to attend to this important branch of husbandry. Having experienced the practical advantages of my system, as well upon land under my own cultivation in Norfolk, as upon farms belonging to my relations and friends in that county, where it had been introduced at my suggestion, I am induced, at the earnest recommendation of many gentlemen who have also witnessed its beneficial effects in Yorkshire, to invite the attention of agriculturists generally to the subject. Manure of almost every description is carried from the place where it is made and deposited on a heap for four, six, or eight months, where it ferments and becomes a soft, black, cohesive mass; it is then put on the land and ploughed down, after which the crop is sown; this may not always be done, but something resembling it is the prevailing and general practice in every part of the country. My method, the success of which have been proved by numerous experiments, is to spread the dung on the land as soon as convenient after it is made, except in winter; the manure made at that period of the year remains in the fold-yard till the spring, where it does not ferment. The whole is taken in the spring, summer, and autumn, fresh to the land; if in fallow, it is ploughed in with a thin furrow; the land is harrowed and ploughed again in a fortnight, and in a fortnight after, harrowed and ploughed a third time; after which the muck, however long it may have been, is reduced, and the soil will be in as fine and friable a state as the land is capable of. From the time the dung is put on to the last mentioned ploughing, nothing can

be more unsightly than its appearance. If it is to be applied to pasture, I spread it over the surface of the ground from the beginning of spring to the end of autumn. Three essential points are to be observed: First, to apply the manure to the soil as soon as convenient after it is made (except in the depth of winter;) secondly, to keep it as near the surface as possible; and, thirdly, to mix it well with the soil.—These being observed, I confidently assert, that advantages equal to double those now derived from manure are communicated to the land by an increase in the fertility of the soil, exhibited in healthier and more abundant crops; so that a farm of 200 acres of arable land of medium quality, producing 400 loads of dung, or two loads for every acre, worth five shillings per load, will be benefitted to the extent of ten shillings per acre annually, and where more manure is made, which on every well managed farm is done, the advantages will be greater. This result has been produced upon the farm now in my occupation, belonging to Lord Cowper, in the neighbourhood of Leeds, to which I entered at Candlemas 1831; it was then in the most deplorable condition; so deplorable was it, indeed, as to lead many of my friends and neighbours to predict the impossibility of my procuring a tolerable crop upon one of the fields for seven years to come; but this field, from the application of manure according to my method, has become exceedingly productive. I fallowed it for turnips, and in May (1831,) I put on about twelve and a half tons of good fresh made stable-dung per acre; as much as possible was taken from the stables and carried to the land the day it was made. My proceedings greatly amused my agricultural neighbors. The preceding tenant observed, that however such a system might have answered in other parts of the country, here it would be a useless expenditure both of time and money, and a great waste of manure. To convince him of the benefit to be derived from such manuring, I directed one piece in the middle of the field to be left without covering. With the exception of the land upon which no manure had been laid, the field produced a very fine crop of turnips, worth at least six pounds per acre, whilst the crop raised upon the land not manured was not worth six shillings per acre. After the turnips, the field produced a very heavy crop of barley, averaging not less than seven quarters per acre, and in 1833 I obtained a most abundant crop of clover without any manure except on the land omitted in the first year. I also covered a field of pasture the same summer with the same kind of manure, half of it in June and the rest in August. Six weeks after the first part was done, I shewed it to a very shrewd and scientific gentleman, well acquainted with country affairs, who expressed his astonishment at the improvement. In October, the farmer whose land adjoins my own, said he had never before seen such extraordinary improvement in any ground. Knowing that he was one of those who had ridiculed my system, I hinted to him that the propriety of it had been much doubted. He acknowledged he had condemned it, and said he now saw that which he would not have believed had he not witnessed it, and that he thought the manure must have contained a large portion of white clover and other grass seeds, otherwise, in his opinion, such an effect could not have been produced. In the hottest part of last summer, I covered, in the same manner, the only field on my farm which had not been previously dressed in a similar way, leaving two ridges in the middle unmanured. I removed all the cattle from this field for six weeks, at the end of which the two ridges had scarcely grass to sustain a goose, whilst the rest of the field looked like a field of fog or aftermath. Many gentlemen examined it. Some seemed satisfied that much benefit was derived at very little cost; others expressed their conviction that it was the greatest improvement they had ever seen, and it is my firm belief that, from the time the dung was put on, to the end of summer, I had at least three times as much grass from the land manured as from the other. I must mention another fact. The man who spread the dung had farmed many years for himself, and might be considered a clever man; he said to me, you would not thus waste manure if you had not the means of getting plenty more. I asked him to wait a month before he decided; he then declared that he had never been so much mistaken. I mention these things, knowing that my plan has much to contend against, and hoping that noblemen and gentlemen, who try my method, may not be laughed out of it before they have applied to it the test of due experience. It may be said that, in these experiments, I did not compare different sorts of manure. I have done so repeatedly, but, in truth, I had then no rotten dung by me. I would propose, to any one who doubts the propriety of my plan, to put a given weight of fresh dung on a heap, to remain (turning it over or not) for twelve months, at which time spread it over the land, and at the same time take a similar weight of fresh dung of the same kind, and spread it over double the space, and I doubt not the result. Hitherto I have confined the recommendation of my plan to practical experience alone, but I am not without scientific and chemical authorities to support me. Mr. Joseph Hayward's Treatise on the Science of Agriculture is worth reading by the agriculturist who searches after truth. Being aware of the great difficulties with which the farmer has to contend, I should recommend any new system with great diffidence, if attended with additional expense; but as the plan I am desirous to introduce is alike recommended by its simplicity and economy, and also eminently calculated to promote the fertility of the soil, and to secure, by that means, a more adequate remuneration to the farmer, I cannot doubt of its being generally adopted, whenever its practical advantages are more generally known and appreciated. My subject has drawn me on to greater length than I expected; I cannot, however, conclude without saying, that if, by the system I recommend, 10*s.* or 15*s.* worth of manure can be added annually to every acre of land of moderate quality, at no greater expense than by the old method, I think the landlord, the tenant, and the public, will be great gainers."

On Education.

[*From the Educator.*]

To *educate* signifies, literally to *draw out*—to *lead out*; and implies something within—something concealed, covered over and not to be immediately accessible for present use; but which, by a little careful management and a right use of means, may be led forth from its retirement, and thus become available. Thus the decaying vegetable matter which lies lifeless in the soil, by proper means may be drawn up into the roots and branches of a seedling tree, and finally become apples, pears and peaches; or into the stalks and heads of wheat, and so become bread. Thus by educating the plants of his field, the farmer feeds the world. The steps of his process are immensely various, but they are all connected with the one grand design, viz. the *drawing out* of the earth what lies hid in it. Now it is obvious that he works entirely by the agencies of nature. He cannot make a blade of grass grow on a grain of wheat. It it the Creator's power, operating according to the laws which he has established in his world. And the farmer *leads out* the plants and the trees which feed the race of men, just by using skilfully the agencies of nature. His whole skill lies in just giving his tree or his wheat *food* and *protection*—every opportunity, and no hindrance, in the way of their expanding their powers. He cannot force them.

Thus also with his domestic animals; all he can do to *draw out* their powers and properties is just to afford them protection—defence against themselves, against one another, against the inclemencies of time and season; and food suited to their innate powers and capacities, and that in proper measure and season. For an animal, like a plant, may be injured by excessive or untimely food and drink. If it be the strength of the ox or the horse that is desired, this quality can be *drawn out* most efficiently by a careful observance of the laws of his nature. He must be gradually trained to its exertion, and the less violence he suffers, the more strength will he expend in his master's service.

So also is it with the powers of man. Infant human beings are the germs whose development is the business of the educator. Feeble plants, indeed! needing above all others, and for a longer period, the hand of protection and of sustenance! But it is with these as it is, generally, in the vegetable kingdom: plants and trees of rapid growth are short-lived.—The Lombardy Poplar soon outstrips the Cedar, but it's age is as nothing compared with it. Animals too are somewhat analagous. And in our own nature, the animal frame of rapid growth is not generally robust.

In contemplating infant humanity as the subject of this process of *drawing out*, three classes of powers seem to comprehend the whole nature, viz. the *animal* or *physical*; the *rational* or *intellectual*; and the *religious* or *moral*. To us it appears that under one or other of these may be arranged all the powers, properties, or faculties of our nature, the *leading out* and perfecting of which is the high and noble object of Education. Let us glance at these in their order.

Physical Education first claims our attention. Because, for a long period of time,—a period equal to that in which most animals come to full maturity,—man is to us, an animal only. He is thrown upon our care absolutely helpless; and our first concern is to protect him and to apply such means as are adapted to put into action the powers he possesses.—Warmth and food are his chief wants. These administered in due proportion, and in proper season, will keep his feeble powers in action, and by their action they increase their own strength. The importance of paying strict attention to the bodies of infants, youth and men, it is not difficult to see. True, the body is of small moment in comparison with the mind: but it is equally obvious that it is to us the vestibule of the soul—the door of entrance to the rational mind. Our success in preserving the body in life and health, is indispensable to our introduction to the mind. We can operate upon this only through that, and the existence and healthful action of the one is indispensable to the growth and expansion, *under our influence*, of the other.

Here then opens out before the educator, an almost interminable field; and one too, of a very inciting character. Even in this lowest department of his labors, where he has to do with matter and its modifications, he occupies high ground. For the matter with which he is conversant is organized, and that in the highest degree known to us—so organized as to come into immediate union with spirit. Of all material subjects, the human body, mysteriously connected with an immortal mind, and destined to be connected in an endless duration, is surely the most interesting and the most important. We consider then education as including the entire business of protecting, nourishing, training and governing the body for the perfecting of its powers. Of course the more accurate knowledge the educator has of it, the more likely is he to succeed in his efforts. And we hope to see the day when mothers, to whom the business of education must first of all be entrusted, will themselves be instructed in the general principles of anatomy and physiology; that understanding the nature of the trust committed to them, they may be prepared the better to discharge its duties. And we hope to enrich our own columns occasionally with articles original and selected on all the various topics that relate to the healing art, and especially the art of preventing injuries to the human frame. *A sound body will always have in it a sound mind.*

Under this department also is to be ranked the whole subject of the animal passions, appetites and desires. Every thing therefore that adds to their proper restraint and direction—every thing that goes to explain their connexion with their body on the one hand and the mind on the other, falls within our province here.

But Intellectual Development is the chief part of education—rather, it has so been viewed by mankind. And we are ready to admit that in comparison with the preceding it is chief. Nor is the general principle different here. The powers of the mind are to be awakened, as it were, like the powers of the body, by the application of suitable instruments.—Food is an instrument for awaking and strengthening the powers of the body; knowledge is the food of the mind, by which its slumbering powers are awakened to energetic action, and by which its *dead powers*, to use a contradictory phrase, become living energies. And the resemblance holds to a very beautiful extent between them. Give strong meat to children and you injure their health; give abstruse and difficult knowledge to a feeble mind, and you overwhelm it; it becomes feeble and sickly. But let the items of knowledge be always adapted to the capacity of the learner; still a little beyond his last attainment; just so far as to induce effort, and not to produce discouragement; thus you carry him onward in the endless race.

Now there is one thing we wish to be distinctly understood between us and our patrons in this matter. It is this; knowledge is not the ultimate object in education. It is a means to an end yet beyond it. The end which we shall still hold up as that at which the Educator aims, is the perfecting of the human being. The efforts of mind which we make in the attainment of knowledge, strengthen it and produce habits of systematic and persevering action: and this increase of the power of the mind is the chief gain. It is not the youth who has acquired at school the most knowledge, perhaps, who has received the most benefit. He may have acquired it as the tub at the pump-spout acquires water; what has been pumped in may be pumped out again. But the youth who has been taught to exercise his own power in the acquisition of knowledge; who has wrought it out for himself, with only the direction of his teacher; this youth, though he may have a smaller amount of knowledge than the other, yet has an inexhaustible supply. His is not a tub, but a spring, flowing up from its deep and exhaustless source. The man has made his capital and his ability to use it; the other has fallen upon his by some gambling turn, which threw the product of other men's labors into his hands. The one will wear and the other will wear out. We will never advocate hydraulic force pumps to create stagnant pools of knowledge, whose possessor knows not how to use. Rather let us remove the tall grass in the ravine on the mountain side, and the turf and the leaves, and open up and lead forth the purling stream, whose limpid waters sparkle as they pitch down the precipice and hasten on to swell the waiting brook below.

One other remark on intellectual education. It is interminable—absolutely interminable. That is, the enlargement of the intellectual powers, by their own legitimate exercise, continues through life. It does not stop when a boy leaves the school; that is, if he

has been rightly trained: if he has been educated at all. If indeed he be a tub, pumped full, of course he can hold no more. But if his powers have been awakened; if he be a spring from the deep mines of knowledge, then he will continue to flow on for ever.—Through life he is still improving; and after the body shall have ceased to be the vehicle of thought, no doubt the mind will continue to expand in knowledge and perfection for ever.

This suggests our third general branch, MORAL EDUCATION; and the first remark we have here is, that the two preceding will prove a curse or a blessing; an injury or a benefit to the individual or society, just as this last is successfully attended to or not. Every man must see that great physical powers and great intellectual vigor, if not under the wholesome restraints, and government of sound moral principles, must do great mischief. The more power a wicked man has, the more dangerous is he. A man who cannot engrave, is unable to produce counterfeit bank notes; and a man who cannot write at all cannot sign them. Better far for the forger and for society, that he had never learned to write, or even to read. Morality is to education what the compass and helm are to the steam ship. The hugeness of her mass, and the might of her motive power, are the measure of her capacity for working ruin, if that might and mass are ungovernable. But put man's physical strength and his intellectual force under the proper command of a *moral helm*, and neither can ever become too great for safety.

Another remark it is well here to throw out. We do not place moral education third because of its inferiority, nor because of its entire subsequence in order of time; but because the others must precede it in part. Physical education necessarily begins first; then the intellectual, then moral; but they run together from a very early age. They are to a large extent mutually dependent, for every teacher knows how much more successful his labors are with youth whose moral principle, like the fly wheel of a powerful engine, regulates his movements. Sole attention to physical education may produce mammoth strength, but it is mere brute mass. Sole attention to intellectual education may produce monster fiends, with immense heads and no heart. Sole attention to moral education is impossible; for the examination of moral truths calls for the exercise of intellectual power; and therefore this department includes both the others.

Again, morality, as distinct from religion, we do not know. Believing ourselves, that there is no boundary marked out by the Creator between them, we shall not attempt to force nature in violation of her own laws. With Washington, we would ask, "Can it be, that Providence has not connected the permanent felicity of a nation with its virtue?" "And let us with caution indulge the supposition, that morality can be maintained without religion." This moral training begins almost in the cradle, and ends—we were just about to say, at the grave; but no. It never ends. We must think the moral faculties, like the intellectual, capable of interminable expansion.

Now, for the development of the moral powers, the moral government of the family, the school, the state, or the church, are chiefly instrumental. And being Christians, we suppose the sum of all the great principles of moral government is contained in the sacred Scriptures. The general truths, therefore, of the Bible are highly important and indispensable to the highest success of education. No system that excludes the fear and reverence which the immortal mind owes its Maker, can be fully available for the development of its more elevated moral attributes. But whilst we consider the successful educator as under imperious obligations to use the Christian Scriptures as an indispensible auxiliary, yet, being ourselves of different sects, we are perfectly clear, that the narrow spirit which sees excellence only within the precincts of sect, is utterly unworthy of the broad foundations on which popular education should rest. The Educator then, will occupy only general ground in the department of morals. It stands committed to the common Christianity and the morality of the Bible, and will treat of these only so far as may be necessary to the public virtue, and to show, as Washington says, that "reason and experience both forbid us to expect that natural morality can prevail in exclusion of religious principle."

Relative value of Manures.

[*From the Genesee Farmer.*]

Since the great truth in agriculture, that manure forms the basis of all successful farming, has been more fully developed and better understood, the attention of agriculturists in foreign countries and in this, has been directed to the discovery of the most efficient articles for this purpose, and the best methods of applying them. So convinced have scientific, as well as practical men, on this point, become, that on their representations, the government of several European countries have ordered extensive investigations to be made, and experiments carefully instituted, to determine several questions relating to manures, upon which farmers and experimentalists were not entirely agreed.

The Prussian government, which, in every thing relating to the welfare of the people, in giving them every advantage of education, and the benefit of every improvement in agriculture, has evidently taken the lead, and in conjunction with the Saxon authorities, appointed Professor Hembstadt, of Berlin, to superintend a series of experiments, and publish the results for the use of the public. The effect which the application of night soil and urine had produced on the agriculture of Flanders, where they had been most extensively used, induced the governments of Berlin and Dresden to place under the directions of the Professor, the contents of the city drains and cesspools, for the purpose of attempting the recovery of the barren and light soils in the neighborhood of those cities. Thus countenanced, that eminent agriculturist, in conjunction with other learned men and practical farmers, commenced a series of experiments, which were carried on for a number of years, and varied in every possible way, in order to avoid all sources of fallacy. The results of the experiments have been published by Hembstadt, and have led to extensive and successful agricultural improvements.

Professor Schubler, the writer of the most esteemed, and certainly the most able, Treatise on Agronomia, or the best method of knowing and treating every species of land, since the death of Hembstadt, has repeated and added to the experiments of that professor, obtaining the like results in almost every instance. These he has published in a tabular form, which have since passed into the hands of all the large practical farmers of Germany, and have formed the basis of instruction on manuring, in the hands of professors of agriculture, whom many of the continental governments have with great advantage established in institutions purposely formed to disseminate useful and practical truths in the art of farming. From these tables Dr. Granville, in his report to the Thames Improvement Company, in speaking of the immense source of agricultural wealth which the sewers of London afford, but which is now worse than lost, makes the following statement of facts furnished by them.

If a given quantity of land sown, and without manure, yields three times the seed employed; then the same quantity of land will produce—

5 times the quantity sown, when manured with old herbage, putrid grass or leaves, garden stuff, &c.
7 times when manured with cow dung,
9 times with pigeon's dung,
10 times with horse dung,
12 times with urine,
12 times with goat's dung,
12 times with sheep's dung, and
14 times with night soil, or bullock's blood. Or in other words, an acre of land sown with two bushels of wheat, without manure, will produce—

6 bushels,
10 " with vegetable manures,
14 " with cow dung,
18 " with pigeon's dung,
20 " with horse dung,
24 " with goat's dung,
24 " with urine,
24 " with sheep's dung, and
28 " with night soil, or bullock's blood.

But if the land be of such quality as to produce, without manure, 5 times the sown quantity, then the horse dung will yield 14, and the night soil 19⅔ the sown quantity; or land that will yield without manure 10 bushels an acre, manured with horse dung will produce 28, and with night soil about 39 bushels of wheat per acre.

These results, and multitudes of recorded experiments prove that they in no case vary far from the facts, show the immense superiority of night soil, or Flemish manure, over any hitherto employed. In addition, Dr. Granville found that some crops which yield large profits, and are so extensively cultivated in both Flanders, can only be obtained in abundance, and of the finest quality, by employing what may emphatically be termed Flemish manure in the preparation of the soil.

Another important matter in the comparative value of manures, and of essential practical interest to the farmer, has been established by the same authoritive investigations; and that is, that while night soil has produced fourteen times the quantity sown, where horse dung has yielded only ten—the proportion of the former, or Flemish manure, was, to the horse dung employed, only as 1 to 5; so that with one ton of the Flemish, a larger produce was obtained than with five tons of the best stable manure.

Dr. Granville has drawn some valuable inferences from these truths.

"In England a ton of good stable manure sells for five shillings. Now an acre of arable land in an ordinary state of cultivation in England is manured with 20 tons of horse or stable manure every 4th year, according to Professor Coventry, and consequently entails an expenditure of £5 in that year. It then produces ten times the quantity of wheat sown. But an acre of the same land similarly sown, and manured with Flemish manure, would require only four tons of it, and which at the price we have fixed for it, (12 shillings a ton) would be an expense of £2 8s. It would then produce fourteen times the quantity of wheat sown on the acre. Supposing the produce of the acre manured with horse manure to be 5 quarters of wheat, and to sell for £15, that of the acre manured with Flemish manure, will be seven quarters, and sell for £21. The result of this comparative farming operation, therefore, would be;

1st, a saving in manure of £2 12s. per acre.
2d, a surplus produce of 6 00 per acre in money.

Total in favor of night soil, £8 12s. per acre.

"Dr. Granville states, that he was assured by Mr. Smet, a great farmer in East Flanders, that a measure of wheat land corresponding to an English acre, manured with Flemish manure, produced last year 7½ sacks of wheat of the best quality. The sack contains four measures, each weighing 180 pounds of 16 oz. each; consequently there grew upon the acre 5,400 pounds of wheat, or 90 bushels."

The heaviest crop of wheat we have ever known produced in this country, was the one for which Mr. Blackmore, of this county, received the premium, 64 bushels per acre. The capabilities of the soil, therefore, when put in the best condition, is little understood, or the amount of food an acre can produce, not generally known. The *science* of agriculture is yet in its infancy, however venerable and ancient the *practice* may be; and perhaps in no branch of it is our knowledge more defective than in that relating to manures.

Professor Johnson's Lectures on Botany.

[*From the Farmers' Magazine.*]

After recapitulating some of the topics of the preceding lectures upon the development of vegetation, the learned Professor commenced with remarks upon the grasses. These grow in all parts of the world promiscuously, and without cultivation, and being the principal nutriment of man, their cultivation follows him in society and his migrations. The Mogul and Caucasian races of men subsist upon wheat and barley; while rice and millet form the food of the Negro and Malay, and the tribes of ancient Mexico were bounded by the cultivation of maize. The cultivation of the earth preceded the improvement of the intellect, and was the herald of civilization. It is remarkble, that we have no direct criterion of the origin of many of those grasses met with everywhere in cultivation, as none of them are to any extent found wild. Some travellers have thought that barley was indigenous to Tartary, rye to Creta, and wheat to Asia; but these might have been diffused from some cultivated some years previously. Corn is not only the support of man, but the grasses are the subsistence of the animals which form his nutriment. The nutritive quality of grasses, is principally owing to the sugar which they contain, and of which some English grasses contain large quantities, but the sugar cane is the only grass that is exclusively cultivated for obtaining this article for commerce. The grasses are applied to a vast variety of important mechanical purposes; they are found in every part of the world, from the Poles to the Equator; on the land, as well as floating on the water, and are the universal food of animals. It has been estimated that the daily consumption of corn in England and Ireland, is, 1,238,096 bushels of wheat and barley; besides annually, 100,000 bags of rice, and 450,000,000 lbs. of sugar. Besides these may be estimated as the immediate products of the grasses, which consumed by animals forms the food of man, a quantity of almost inconceivable amount. In London alone, is annually consumed 155,000,000 lbs. of butcher's meat. Of cheese, another production of grass, 11,500 tons are annually introduced into London, from Cheshire, about 20,000 tons from Warwickshire, besides that from several other countries. Of butter, the annual consumption is almost 50,000,000 lbs. the produce of 300,000 cows; and in London, between 9 and 10,000 cows are kept for the supply of milk to the inhabitants, which produce an annual supply of about 30,000 millions of quarts. All these are the immediate products of the grasses.

Most culinary vegetables belong to the cruciform, umbellate, or papilionaceous varieties of plants.—The first is so named from four petals forming the flower, being disposed in the form of a cross, as in the wallflower. It may be remarked, that not a single species included in this group is poisonous but that the whole, if not absolutely employed as food, are not deleterious. The cabbage, cauliflower, brocoli, sea kale, turnip, mustard, and almost all culinary vegetables, but spinach, belong to it. Another extensive group, is the umbellifera, so called from the arrangement in umbels, the main flower stalk diverging into a number of spokes like an umbrella. Although

this class contains many used as condiment or food, many others which are very poisonous, are associated with them, as the hemlock. We know too little of the natural affinities of plants, to enable us to distinguish the poisonous, from those that are not so; as the sweet chervil of the garden, which is often mistaken for hemlock, nor the common celery, mistaken for the same. Accidents from this kind are not uncommon, and it was from eating drop-wort that grows upon the banks of the Thames and other rivers, instead of celery, that several convicts died at Woolwich, three or four years ago. The papilionaceous, include many used for food, as pulse, beans, peas, tares, saintfoin, and others, and are so named from the fancied resemblance of the flower to a butterfly. The fruit forms a pod, called a legume, and the plants are therefore called leguminous; of many of them, the seeds are food for man, and the stem and leaves of some, are food for cattle; but the seeds of the laburnum, and many others, are poisonous. Although we are not yet sufficiently acquainted with the characters which may enable us to distinguish the qualities of all, yet, De Candolle has furnished us with a sign by which we may in some measure distinguish betwixt those which are poisonous or not. It is by observing how the leaves spring from the seed, which are found to be very dissimilar. Some throw their lobes above the ground, and are of a green colour, as in the laburnum. In most of this kind of plants cultivated for the purposes of food, the leaves remain beneath the soil; but although this cannot be taken as an absolute criterion of a wholesome plant, from the circumstance that some of them throw up their leaves, it is a well recognized fact that no poisonous plant keeps its leaves beneath the surface. The potato is a member of a poisonous and narcotic order, being included in the same as the hemlock, nightshade, and mandrake. The potato being wholesome, seems to mark another feature, that some parts alone are poisonous whilst others are not, and that this poisonous principle may reside in different parts of the plant. In the poppy, the seeds are not poisonous, but on the contrary, highly nutritious; in some parts of the continent being a food both for man and animals. It is used extensively for the adulteration of oil; a large portion of the olive oil imported from France being almost exclusively composed of it. The fleshy part of the plum and other fruits is good for food, and nutritious, whilst the kernels and leaves are highly poisonous, containing hydrocyanic acid. The tubers of potatoes when roasted, are good, but the stem, leaves and other parts of the plant are deleterious. The tubers, when on the ground and exposed to the surface of light, become green, and taste badly. In its history the potato presents the same hemisphere as various kinds of corn. It was not known in the Eastern hemisphere, or the Old World, until after the discovery of America, where it was found cultivated in Peru, from whence it was introduced by Sir Walter Raleigh into Virginia, in 1586. It is supposed to be indigenous to the Andes and Peru, but it is not found there in a wild state by travellers. In many parts of Asia Minor, the soil is covered with the citron, cherry, pear, and other varieties of fruits. Although we are ignorant of their native spot, they may have formerly been introduced into these parts and cultivated, and point out ancient civilization. Many ages ago, science and civilization were confined to certain parts; and from countries in proximity to the Euxine Sea, the gulph of Persia, and other parts, was Europe indebted for its supply of almost all descriptions of fruit and vegetables. In the time of Cato, the Romans were neither acquainted with peaches or mulberries; in that of first Tarquin, the olive was not known to exist in Italy, Spain or Africa; in that of Appius Claudius, olive oil was rare; but now, all the neighboring countries derive their supply from these parts. In the time of Pliny, it was introduced into France and Spain. The vine, all the varieties of which originally sprung from one species, modified by climate and cultivation, is interesting in its genealogy. It was not known originally in Europe, but followed man in his migrations. It is found wild in the Caspian, though we have no reason to suppose it originally to have been so.—From Greece it was introduced to Sicily; by the Phoceans it was carried into the south of France; by the Romans to the banks of the Rhine; from whence it was extended to the various islands of the Mediterranean. Several of the fruits so important in the tropical regions, as the banana, the date, cocoa-nut, &c. have the history of their origin involved in the same obscurity as the European plants just named.

The solid matter of which vegetable substances are principally supplied from the earth, is carbon or charcoal, which principally comes through water. In plants growing in the arid sands of tropical regions, which are scarcely susceptible of supporting vegetation, we find very little carbonaceous matters, a small proportion of the solid principle being combined with a large quantity of aqueous juices. There are certain other principles which must be furnished from the soil; and if it be destitute of these, the plant cannot be fostered, and hence the difficulty of cultivation, from not knowing the chemical nature of the earth and soil. Plants growing in the neighborhood of the ocean, contain soda, which has its origin in the spray of the sea to which they are exposed; the common eryngo will grow in such situations, but not in a garden, from the want of sea-salt. It has, however, been kept alive under such circumstances, by watering with water in which sea-salt had been dissolved. The matter of flint, or silica, is contained in considerable quantities in many plants, as in the common cane; if two pieces be rubbed together they will produce a light from this circumstance. When we examine the cuticle, we find a considerable quantity of minute flinty matter, which produces the light. Mechanics are in the habit of using a vegetable production called Dutch rush, but which is not common in this country; it is used by cabinet-makers and workers of brass, for polishing, where it acts like a fine file, caused by an innumerable number of peices of rock crystal. Two causes may be assigned for the presence of this:—it is either imbibed by the plant in a fluid state, or produced by a certain specific vital action in the plant. As we do not know any instance of the latter, the former may be assigned as the probable cause. Such plants will not grow without silica, and in situations where plants do not flourish, it is owing to the circumstance, that the soil does not contain its proper quantity of proper earth.

Lime is a well known substance, existing in vegetables in various proportions; in some being contained in a considerable quantity. It is always in combination with an acid, either the carbonic or the phosphoric, analagous to chalk or animal bone. One probable cause of the fertility of lime, when applied as manure to soil, is in the carbonic acid which it absorbs from the atmosphere, presenting it in a form by which it is readily decomposed. The soils which contain lime are most favorable for the growth of corn; and wheat never flourishes more than where it abounds. It is contained in grain in such quantities, that it is computed that every person who consumes 1 lb. of bread daily, will, in the course of one year take into his system 3 lb. 6 oz. 3 drachms, and 44 grains of phosphate of lime. This circumstance is the reason why it is of superior quality over other grain, as it forms the principal part of human bodies. It is found in milk, where nature seems to indicate that it is contained for the nourishment of the young animal, from the remarkble fact that when they are able to take other food, the milk loses its proportion of this substance. Although phosphate of lime is contained in considerable quantities in the adult secretions, it is not known in those of the young, being all taken up for the purpose of nutriment. The shells of eggs are formed of this substance, and Dr. Paris has ascertained the singular fact, that if the legs of a hen be broken, she will lay her eggs without shells until these are repaired, for which the lime is required. Hens will also lay their eggs without shells if there is a deficiency of lime in the yard in which they roam. It is a remarkable circumstance, that although the grain contains the phosphate, the straw contains the carbonate of lime. Carbon is, next to water, the principal support of vegetation. In the formation of soil, the earthy and crustaceous lichens are planted first: these die and form a bed for the seed of the mosses. In the fertilization of land, different operations are going on; the roots of the eryngo run five or six feet from the stem, they then die and form the vegetable matter or black mould which covers the barren rocks that cover the globe. Nature herself realizes the fable of the phœnix. Man, the lord of the earth, is subject to the same laws as all other created beings; furnishing after death food for others, as myriads have done before; and we trample on others alike in beauty and decay.

The Soil.

[*From the Educator.*]

By this term is meant whatever vegetables, plants, trees, &c. grow in. It may to the eye at least, be a collection of stones and rocks. It may be a bed of partially decomposed vegetable substance mixed with small portions of clay or sand—a bog. It may be an almost unmixed clay or sand. Still that substance, from the midst of which the plant thrusts itself forth, and where it grows, is its soil.

The use of the soil is threefold, First, it is the cradle and dwelling place of the embryo plant and its stay and foundation in after growth. It receives the seed and retains the roots of the tree and supports it. The solid parts of the soil constitute the pillars and props which uphold the growing plant. The same friendly office continues even after life has parted from the leaf and vigor of health died in the stem or trunk.

The second use of the soil is to furnish food for the plant. The first of all the ingredients necessary is moisture. The seed cannot expand and thrust into life the embryo tree or plant, without water. The absence of this universal solvent make all soils barren. Water is the universal *physical regenerator* of the vegetable world. Every seed was alive once; viz. when it grew on its native stem, whence it derived its being. The plant that bore it died. It died virtually itself—it exercises no living energy; but water—moisture, with that heat which it includes, penetrates its various parts and swells them into active life; it is regenerate to live, and henceforth, by the power of the same element, it continues to grow. What is the sap or juice of a plant, but water holding in solution in itself, various matters for the nourishment of the plant? Take away all the water out of a tree and can it live? The cedars of Lebanon and the pines of Alleghany, equally with the weeds of our gardens and the green moss that mantles the stagnant pool, are dependent upon water for their growth. Now the soil is a sponge full of water, ready to be applied to the parched lips of the plant it nourishes. This water is a *solvent*; that is, it dissolves in itself the various substances which go to form the body of the plant, just as sugar is dissolved in tea; and thus the water, which in the soil is a solvent, also becomes a *vehicle* to carry the food up the pores of the plant and to distribute it into all its parts; as in our mighty rivers and the great ocean itself, the water is the great transporter of all goods. The very power which calls the plant into life, continues its vivifying influence to sustain and carry on that life. Analogous to this, is the agency of water in animal life. Our bodies are equally dependent for their life, on the active agency of water. A similar analogy exists in regard to mind—there is a spiritual water.

But the *soil* not only *contains* this indispensable solvent; it also *consists* of various ingredients, which become mutual solvents. The different kinds of earths act upon each other, and, especially by the aid of water, act upon the vegetable matter mixed up with the soil, and so reduce it to that state in which it becomes the food of plants. Now it will be obvious, that the goodness of soil, must depend upon its capacity to *prop* up the plants, and to *supply* them with food. If they be well propped up and well supplied with good food, they must grow well: provided, they be not out of their latitude,

These remaks are intended to convince our agricultural readers, that an inquiry into the nature and use of soil, is not a useless speculation: nor is it a dry and uninteresting subject. Science lies at the basis of all art, and it is our wish to aid in lifting up terraculture to the dignity of a science. That is, we wish the farmer and gardener to understand the nature of their soil, and the laws of that nature, whose regular action produces the results at which he aims. We wish to see the cultivator not working blindfolded; but understandingly. We wish him to know not only that some kinds of soils are suited to some kinds of plants; but also why they are so suited—what it is in the soil which suits it to this or that particular vegetable production. For example, we would have the farmer not only to know the general fact, that lime spread on a field infested with sorrel will correct that evil, but also, why it will so operate. We would make the very labor of his hands, the means of enlarging the capacity, by stimulating the activity of his mind. We would have him a student of nature, on her most attractive pages, that his soul may expand indefinitely as it directs his bodily powers to the most profitable exercise.

The soil as a prop.—If you look at any plant you will find its roots are designated first to support it in its natural position. They spread round the stem, stalk, or trunk, in such manner as to stay it, like the bracing of a frame building. Now these braces must have a solid basis to rest on: less or more immediately contiguous to the stalk. Plants that rise high must run deep, or have wide spreading roots. The texture of the soil—whether stiff and tough clay; loose and open sand; moist and almost liquid marsh, or rocks with little minutely divided matter among them; the texture of the soil and the nature of the plant ought to be adapted to one another, and will determine the depth or width to which the roots will extend. In fibrous rooted plants, such as wheat, rye, oats, it is obvious that porous, open soils will afford the roots the best opportunity to run deep and wide. Whereas close, clay soils resist their passage, and confining their range, are unfriendly. Hence one way in which lime is profitable, is by changing the texture of clay lands. It combines with the clay, and causes the mass to granulate or assume the appearance of fine sand. So enabling the roots to spread and the air to penetrate the deeper into the soil. So whatever causes the soil to cake, to become stiff and glazed, as it were, on the top, must become injurious. Whether this is not an effect of anthracite coal ashes, remains to be decided. The small experiments I have made induce me toward this belief.

11th Annual Fair of the American Institute,

OF THE CITY OF NEW-YORK,

At Niblo's Garden, No. 576 Broadway.

This celebration of American industry and the arts will be opened to visitors on Monday, the 15th day of October next, at 10 o'clock A. M. Articles intended for competition for premiums must be delivered on Friday or Saturday previous, viz. the 12th or 13th of October. Choice productions from every department of industry, whether of agriculture, manufactures, or the arts, as well as all kinds of machines, models, &c. will be appropriate for exhibition and competition for premium.

To provide the requisite accommodations for the grand display which the notices already received decidedly indicate, Niblo's entire Garden has been engaged, embracing a part of the promenade, never before occupied by the Institute, with extra room one hundred feet in length and twenty-five in width. A powerful steam engine will be provided, which will afford a continued moving exhibition of machinery. The liberality of the public enabled the managers of the last two fairs to bestow in premiums, exclusive of diplomas, *sixty Gold Medals*, and *two hundred and sixty Silver Medals*, in addition to other not inconsiderable rewards in money.

Prompted by a desire to increase the interest awakened in agriculture, particularly in the culture of silk, a number of patriotic individuals have volunteered to add to the means of the present managers, in order to enable them to extend more liberal bounties, and promote among the silk culturists of our country a fresh spirit of emulation. This laudable example we hope the opulent and public spirited, who take an interest in other departments of productive industry, will follow by associating and contributing with similar high-minded motives.

The enthusiasm with which former celebrations have been hailed, and the cheering influences already inspired by the approaching one,—notwithstanding all our severe business calamities,—confer on them a character and value never before adequately appreciated. By means of these fairs, necessity, instead of depressing invention, has brought forth its mighty powers, and is developing its unbounded resources.

Articles sold during the fair cannot be delivered until the close; and in order to enlarge the amount of sales and bring to fabricators and producers immediate benefits, it is particularly desired that a description should accompany each article, stating the price, by whom manufactured, designating particularly the place where they may be obtained. The uses and objects of each article, if not apparent, should also be stated: such a description will facilitate the distribution of printed catalogues early in the first week of the fair, and will no doubt swell the amount of sales.

The public are invited to attend this anniversary celebration. Distinguished individuals, it is hoped, will be present, countenancing and inspiring as usual. Female delicacy, taste, and ingenuity, have never failed to impart a crowning effect; and we trust they will, on the coming occasion, more than ever command admiration.

MANAGERS.

Thaddeus B. Wakeman, Adoniram Chandler, Martin E. Thompson, Charles H. Hall, W. P. Dissosway, John Sampson, E. T. Backhouse, Timothy Dewey, E. D. Plimpton, Baldwin Gardner, James Hamilton, George Bacon, Joseph Titcomb, Jared L. Moore, John D. Ward, J. Van Norden, Frederick Goodell, H. M. Graham, J. Prescot Hall, Joseph Cowden, Edwin Williams, H. Kelly, *of New-York.*

Jeremiah Johnson, William J. Mullen, James Cropsey, *Brooklyn, N. Y.*

Jesse Buel, C. N. Bement, *Albany.*

Paraclete Potter, Thomas W. Harvey, *Po'keepsie.*

William Halsey, James Miller, Stephen Dod, Alex. C. M. Pennington, *Newark, N. J.*

Christopher Colt, Melvin Copeland, *Hartford, Conn.*

William C. Gilman, John Breed, *Norwich, Conn.*

On the Inflammatory Complaints of Farm-Horses.

By Mr Matthew M. Milburn, Thorpfield, near Yorkshire.

CAUSES.—In order to clear our investigation of some difficulties, it will be necessary to show that there is not any peculiar predisposition to disease in the breeds of horses usually employed in heavy draught, nor to any particular and characteristic conformation of the animals, which, I think, can easily be done. The coach-horse and the draught-horse are now very frequently bred from the same mare, and the breeds are so completely crossed and intermixed, that further than form and capability, with a sufficient degree of blood in the case of the coach-horse, they have lost their distinctive breeds. The horses employed in the cultivation of light soils, which the introduction of turnip-culture has so much extended, has caused the coach-horse and draught-horse to assimilate very closely. The peculiar characteristics of the old Suffolk breed, is lost in the continual crosses which have taken place to obtain more speed, and the farm-horses generally, perhaps with the exception of those used on very heavy soils, are partaking much of the character of the coach-horses of some ten years ago, and although a lighter class of animals have of late years been held in requisition for light work, to suit the rapid communication which our commerce demands, still so much intermixture has taken place in the different breeds, that no distinction can be pointed out between the one and the other, in so far as liability to the diseases in question is concerned. We are not aware that any peculiar conformation has any connection with the predisposition to such diseases.—The horse required for fast-work must have a capacious chest, to admit of the rapid propulsion of the blood which his exertion demands; but the horse of heavy draught also is valuable for his depth and rotundity of chest, to enable him to perform the tremendous exertion which is occassionally required of him. There are two instances, however, where constitutional peculiarities may predispose to the complaints in question. There are certain horses denominated "*washy*," or horses in which the space between the last false rib and the hip-bone is wide; in the language of the jockey, when he is not "well ribbed home;" such are known to be liable to diseases of the bowels when put to extra exertion,—but upon what principle I am unable to say. Others have a natural or acquired habit of voracious feeding, which is extremely prejudicial to the healthy action of the digestive and excretory organs, and to which I shall presently allude.

The post-horse, and such as are required to perform fast-work, are more liable to attacks of diseases of the brain, the nerves, and the lungs, simply because their work consists of rapid powerful exertion;—the farm-horse,—the animal of long and steady exertion, to gripes, inflammation of the bowels, and stomach staggers,—results, as I shall presently shew of a management unsuited to the character of the labor we require from them. The stomach of the horse is remarkably small;—smaller in proportion to his size, and the quantity of food he requires, than any other domestic animal. Nature intends for him a supply of nutritious food, and that *at short intervals;* wherein he materially differs from the ox, whose capacious stomach will contain food which will not be digested for hours. The post-horse, the hunter, and the carriage-horse, have food of the most nutritious description, and the time during which they are worked is necessarily short, owing to the extreme exertion required; they return to their food, and although their appetite may for a time be impaired, and their stomach and bowels affected by the general debility of the system, yet they recover their tone, as soon as the rest of the frame admits of their taking food. The farmers' horse, on the contrary, has food of a less nourishing nature, his rack is filled with straw, or, at best with clover;—the ploughman rises early, gives him a feed of corn, and leads him to his work, where he continues for seven, eight, and even nine hours, and his whole day's work is completed before he is allowed to eat. We do not find the ox, worked under similar circumstances, so affected in the stomach and bowels, simply because his capacious stomach, when filled, requires many hours to empty, while, as we have seen, it is different with the horse. Debilitated and hungry, the horse returns, and his rack is plentifully supplied, and a good feed of corn given him, and he is left to himself; he eats voraciously, half masticates his food, loads his debilitated stomach, and his digestive organs are weakened, and permanently injured. This course is repeated,—a habit of voracity is acquired, and at no very remote period the food lodges and obstructs the pyloric orifice (the passage from the stomach to the bowels,) fermentation ensuses,—gas is evolved, the stomach distended; he grows sluggish and sleepy,—drops his head upon his manger; or he is delerious, and evinces that the sympathy which exists between the stomach and the brain has excited the latter organ; he rolls, paws, and is seized with convulsions; at length he expires, and he has died of stomach staggers. If the previous history of the horse is examined, it is probable that he has been subject to gripes: thus showing, not only the connection between the common management of farm-work horses and diseases of the organs of digestion and excretion, but between the two latter. The half-masticated food has irritated the bowels, extra exertion of the muscles has been required to propel the dung to the rectum, and cholic or cramp (spasms) of the bowels, has followed, or a course of continued irritation, or of continued cholic, or both, has ended an inflammation of the bowels. I remember a beautiful farm-horse, which, owing to the distance of part of the farm to which he belonged from the buildings, was worked the long hours described, and finished his day's work before his bait. He was constantly subject to attacks of the gripes, which was subdued; but he died of stomach staggers. The same stable, then so often subject to diseases, is now, by a change in the system, completely free from them. Another case, however, occured,—a beautiful compact little mare was constantly afflicted by cholic,—she eventually died of inflammation of the intestines.

There are other parts of the management to which horses employed in agriculture are subject, which induce diseases of the bowels; for instance, a boy returning from work, with heated and sweating horses, to save himself trouble, allows them to drink copiously at some pool or stream he passes. Suddenly one or more of the horses exhibit symptons of gripe, they suddenly lie down, roll about look at their sides, rise up, seem, relieved, and again speedily relapse; the sudden application of the cold water has produced spasms in the bowels, through which it has passed. This is neglected, or perhaps gin or whiskey, aided by pepper, is administered as a remedy, and severe and general inflammation of the bowels is the result; this is mistaken for another attack, and again the poison is administered, and the inflammation increased, and death follows. The horse of heavy work, too, is longer exposed to the inclemencies of the weather than the animal of light work. In the former, the rain is allowed to fall upon him for hours, and it is allowed *to dry upon his back*; the sympathy between the skin and the alimentary organs is known to every groom,—obstructed perspiration, and consequent irritability, is conveyed from the one to the other, and disease is the consequence. It is true, the latter is also partly exposed to the rain, but for shorter periods, and the wisp and brush are liberally applied when he enters the stable; a determination of blood takes place to the skin, perspiration is excited, and diseases thus prevented.

There is another disease to which horses are subject, and which is at once the cause and consequence of inflammation of the intestines. I mean intestinal calculi. Inflammatory action of the bowels, like that of every other part of the system which comes in contact with any foreign body, is liable to produce calculi, which in turn irritate the bowels, and produce a lasting predisposition to disease. For this I am not aware that any remedy has been discovered, and what is worse, they generally accumulate with age, and eventually produce death, the only power over them arising in our endeavors at prevention.

PREVENTION.—Of the best means of preventing these diseases in farm-horses we will now treat. We have attributed the peculiar liability to them in farm-horses to mismanagement, with the exception of certain instances of peculiar formation of the animals, and although the farmer must necessarily work his horses longer hours than the horse of rapid work is capable, there is no necessity of depriving the animal so long of food. No horse should work more than five or six hours without a bait. If we examine the history of the stables of large farmers, whose fields necessarily lie at a great distance from the buildings, and where they are worked long in consequence, and compare it with that of small farmers, under the contrary circumstances, we shall find a striking difference as respects the health of the animals. The case referred to above strikingly illustrates the truth of this observation. But, it may be asked, how it is possible to bait the animals so far from home? The difficulty seems to be in procuring food upon the spot, for if this is not done, the precaution will be neglected, and, at any rate, the land will be occupied by it. This, however, may be remedied. In the case, for instance, of a field intended for turnips, which has to be worked during the spring, a part of it, half an acre, or in proportion to the size of the field, may be sown with winter-tares, a few of which may be mown off, and given to the animals green, without carrying them from the field, interfering with any crop, or wasting any time in carrying the horses to a distance. If the field be intended for summer-fallow the spring tare will answer, and which may be used in the same manner, instead of allowing the poor animals greedily and indiscriminately to crop the leaves of the hedges at every turning, from the impulse of hunger. There is another easy way of baiting, which some carters adopt, and which might be applied to the farmers' horse, especially when carting. It consists in securing a bag, containing corn, over the animal's mouth and nose, by a string, which passes over the poll, and is locally denominated a "nose-bag," or "horse-poke," and which should be removed when he has finished his feed. To prevent the effects of the wet upon the skin, an unexpensive glazed cloth may be thrown over the horses backs, and secured to the collar and traces. This may by some be considered very troublesome, but, it will be found, that when it is once begun, it will be considered no more trouble than carrying the rest of the harness, and if disease is prevented, the trouble amounts to nothing. To counteract as much as possible any habits of greedy feeding which the horse may have acquired, his corn should be mixed with chopped straw, or chopped clover, which will secure its proper masti-

cation, and prevent many troublesome complaints, as well as render all the nutrition of the food available. These may be substituted by an admixture of clean chaff with corn, a plan which is pursued in a farm-stable with which I am acquainted, and is found a useful practice. It would save the animals much time in eating, if all their food was chopped, and perhaps steamed; but on this subject we have not sufficient data to determine it with accuracy.

Cure of the Diseases.—The cure, it has been hinted, must generally be left to the veterinary practitioner in the complicated diseases of the horse; but I shall refer to the principles of cure, in order to guide the farmer from some errors into which he may otherwise possibly fall. To begin with the most difficult, stomach staggers, which is distinguished from mad staggers, by the sluggishness or dulness of the animal in the first stage of complaint; but from the sympathy between the stomach and brain, the former often ends in the symptoms of the latter. All the efforts of the practitioner must be to empty the stomach; it is often a fruitless attempt, but a powerful dose of castor-oil (1½ lb.) may be tried, as being rapid in its effects, and mollient to the hardened food in the stomach. Bleeding may also be useful in preventing the delirium. In the early stage of the disease, a stomach pump may be used to wash the food from the stomach; but here an experienced practitioner alone will be able to do it. Gripes or cholic are, fortunately, generally more easily subdued; they are distinguished from inflammation of the bowels by the suddenness of their attack, the temporary relief from pain, and the relief obtained from exercise, the symptoms of the latter being directly contrary. Bleeding alone will frequently relieve the spasm, but I have known a very simple remedy used with almost general success. Goose fat, in the quantity of a pound or three quarters given warm, generally produces relief in a very short time, if accompanied by walking exercise. In severe cases, one ounce of laudanum and a dram of powdered ginger, in a quart of warm ale, may be used with probable success.

Inflammation of the bowels is worse to cope with than gripes, and a farmer should never attempt the cure himself. He should call in the veterinary surgeon *immediately*. The disease may be distinguished by a coldness of the extremities; this at least indicates inflammation, or that the b'ood is determined to some local part, and the heaving of the animal's flanks, and his anxious looks at his bowels, as well as their tenderness when touched, will indicate the seat of the inflammatory action. The first object is to relieve the system, and counteract the impetus of the blood; bleeding persevered in until the horse drops, is the only chance for saving his life. There is another principle in horse medicine which here will be called into vigorous action. No severe inflammation can take place in two contiguous parts of the system at the same time. To lessen the internal inflammation, the belly must be largely and powerfully blistered, and these are the two means for subduing the disease. No purgative medicine should be given, but the horse back-raked, to prevent the formation of calculi, and a glyster administered in the form of onion broth.—All stimulants must be avoided, as they are sure to act as poison to the animal. In conclusion, I would impress upon the persons concerned to aim at *prevention*, where their efforts will generally prove available, for they seldom are so in the curative process.

Young Men's Department.

Hints to Young Farmers.—No. XI.

ANALOGY BETWEEN THE CULTURE OF THE SOIL AND THE CULTURE OF THE MIND.

The soil is endowed with the elements of fertility, capable of yielding all necessary sustenance to man. The mind is endowed with all the elements of usefulness and intellectual enjoyment, capable of rendering man virtuous and happy.

The soil, left to itself, brings forth noxious as well as useful plants; and the useful, such as minister most largely to our wants, can only be made to thrive by unremitting care and labor. The mind, left to itself, is the prolific source of evil, as well as of good; and it is indebted for its highest attainments, and most elevated enjoyments, to persevering study and labor.

Culture is the application of labor and skill, to increase and improve the products of the soil, for the gratification of our animal wants. Culture is the application of study and labor, to improve the good qualities of the mind, for the gratification of our intellectual wants. We enjoy the first in common with the brute;—the latter is the prerogative of man.—And both the soil and the mind rise in the scale of usefulness in proportion to the good culture that is bestowed upon them.

Soils differ in their natural fertility; yet those of medium or inferior quality, by the application of labor and skill, are often made to excel, in their products and their profits, those of the first class which are badly managed. Intellects also differ in natural fertility—some develop precocious fruits, while others appear tardy and dull—yet by proper culture and discipline, the latter often, very often, excel, in private virtue and public usefulness. In regard to soils, it has been said, that where nature has been less bountiful, man is most industrious and happy. It may be said of the mind, that where fortune is less prodigal, individual effort is most active and successful in developing its treasures. For,

As rich soils are most prolific in a rank growth of weeds, which choke and destroy the corn, unless timely eradicated—so rich men's sons are very apt to abound in rank weeds of the mind—as indolence and dissipation—which obscure or smother the noblest faculties of the soul, unless sedulously watched and manfully mastered.

The soil requires, in order to obtain a full development of its beneficent powers, not only the *preparatory process* and the good seed, but the *after culture*—that the young plants be carefully nurtured, and that all noxious weeds be extirpated. The mind, in like manner, needs the *after culture*. It is but *prepared* for useful knowledge by the elementary teachings of the school. The good seed is here too to be sown, in the spring time of life, the virtues are to be carefully nurtured, and the bad passions and propensities mastered and controled, if we would gather the harvest of renown, or become useful to ourselves and country.

A well cultivated soil not only benefits, directly, its proprietor, but, by the example it furnishes, and the abundance of its products, it indirectly benefits society at large. So the well cultivated mind not only benefits its possessor, but by its example and its fruits, confers blessings on the whole commonwealth.

The good culture of the soil will supply the means of cultivating the mind. The good culture of the mind will fit it to become a powerful auxiliary to labor, in increasing the products of the soil. The culture of the soil and the culture of the mind are, therefore, of reciprocal benefit to each other.

If you would, as Poor Richard says, be "*healthy, wealthy and wise*," cultivate with diligence—and cultivate well—both your soil and your mind.

Industry vs. Indolence.

J. Buel, Esq.—Sir—Industry produces a stream that flows slowly on to elevate the inquiring mind, which forms a sure foundation and great barrier against every vice. It is a granary to the mind, where every virtue will be stored: it lends a sweet tincture to every action, which is gratefully cherished.

The man who has no occupation must be quite unhappy; toil is the price of sleep and appetite, of health and enjoyment. How nobly every order is displayed! The very necessity which overcomes our natural sloth is a blessing. Every briar and thorn which is strewed in our path; every noxious plant which the world contains, and every annoying insect which appears to surround us, by divine mercy, could not have been spared.

We are happier with the sterility which we can overcome, by our united exertion, than we could have been by spontaneous plenty, and unbounded profusion.

No way can the body and mind be so morally and effectually improved, as by the toil that fatigues them. That toil receives its manifold rewards daily, by the pleasure it bestows. The enjoyments are so varied and peculiar, that no wealth can purchase them, no honor can win them, no indolence can taste them.

Many people imagine themselves in pleasures, provided they are neither in business nor study. Nothing like it; they leave not one trace of their laborious and intellectual exertion behind them, no more than if they were asleep.

By contracting habits from laziness they frequent only those places where they are free from all those restraints, attractions and demands, which do justly surround them.

This sinks the indolent into contemptible obscurity all the days of his life. He only lives to die in a thousand errors, and rather adopt the prejudices of others than give himself the trouble of acquiring true knowledge, which tends to form correct opinions of his own.

Idleness leaves a man in the lowest state; his pleasures are all sensual, no wants are sought after but those of appetite. The man of industrious habits is looking forward, with a degree of superiority, to more noble and higher attainments in intellectual enterprise. He dicovers that the happiness of individuals and security of society are formed by the industrious habits which elevate the mind, and is carried forward in search of something more excellent, and obtains a proper degree of superiority over the common senses of life by learning to feel himself capable of higher aims and nobler enjoyments. That which abstracts the thoughts from sensual gratifications, and exerts us to look for happiness within ourselves, will surely advance, in a measure, the dignity of our nature: therefore all good pursuits reward themselves; one truth constantly presents another to view, and while our store of knowledge and enjoyments are constantly increasing, kind nature can never be exhausted.

Industry, properly applied, will most assuredly advance our prosperity: the advantages of which are two-fold; it will, in a measure, be estimated by the pecuniary profit produced, but more by the superior tone of industry and economy which the possessor unconsciously acquires.

That which the industrious has obtained by his own proper and well directed exertion at once causes him to feel raised in the scale of being, and endows him with the capacity of enlarging the stock of his possessions.

When property is accumulated by the industrious peasantry, it never fails to produce impressions on their minds, very lasting and unavoided. In such instances it renders them more industrious. They also strive to better educate their children, that they may be better fitted for some good and useful attainment and station in life.

S. W. JEWETT.

Weybridge, Vt. Aug. 8, 1838.

*Moneys received during the last month, in sums of five dollars and over. The total receipts are included from post-offices marked with an asterisk.**

	No. Vols.		No. Vols.
Albion,	Ill. 6	*Liverpool, Onon.	14
*Abbeville,	O. 16	*Lisbon,	Ct. 42
Akron,	" 5	*Montpelier,	Va 41
*Braintree,	Mass. 20	*Mishawaka,	Ia. 23
Bellevue,	O. 5	Millville,	Va 10
Beaufort,	S. C. 11	Middletown,	" 17
*Brinckleyville,	N. C. 11	Mansfield,	" 10
Brownsville,	" 5	*Montreal,	L. C. 21
*Catskill, Gr.	13	Mayfield,	Va. 24
Chatham,	Ct. 6	Napoleon,	Mich. 5
Chillicothe,	O. 13	*New-York city,	140
*Chaptico,	Md. 16	*New-Hope,	Pa. 10
Cokesburgh,	S. C. 11	Newtown,	Md. 22
*Canton,	Ill. 10	New-London, Onei.	6
Covington,	Geo. 5	New-Franklin,	Mo. 5
Cincinnati,	O. 13	*Orange C. H.	Va. 29
*De Witt, Onon.	7	*Plymouth,	Ct. 11
Damascus,	O. 10	*Philadelphia,	Pa. 108
*Dixon's Ferry,	Ill. 39	*Petit Nation,	L. C. 7
*Detroit,	Mich. 7	*Po'keepsie, Dutch.	45
Elk Horn,	W. T. 11	Providence,	R. I. 5
Ellisville,	Va. 5	Point Pleasant,	Va. 6
*Eastville,	" 11	*Rhinebeck, Dutch.	30
Frankfort,	Pa. 6	Racine,	W. T. 6
*Flemington,	N. J. 27	Rome,	Tenn. 5
Greenland,	N. H. 6	*Richmond,	Va. 115
*Galipolis,	O. 16	Rushville,	Ia. 6
*Georgetown,	D. C. 36	St. Louis,	Mo. 11
*Hudson, Col.	21	*Sheffield,	Mass. 19
*Huntington, Suff.	32	*Stroudsburgh,	Pa. 22
*Huntsville,	Ala. 56	Salina,	Ky. 10
Hope,	N. J. 5	*Schoolcraft,	Mich. 12
*Heathsville,	Va. 27	*Smyrna,	Del. 23
*Hartford,	Ct. 32	*Sandersfield,	Mass. 3
Jackson,	Tenn. 10	Sag Harbor, Suff.	10
*Johnson's Springs,	Va. 47	*Southbridge,	Mass. 19
*Kanawha C. H.	Va. 30	*Shaftsbury,	Vt. 21
Kaskaskin,	Ill. 11	*Terra Haute,	Ia. 39
*Lockport, Ning.	23	*Utica, Onei.	52
*Lansingburgh, Rens.	12	Worcester,	Mass. 5
Laporte,	Ia. 11	*Washington city,	D. Col. 66
Lancaster,	N. H. 6	Wardensville,	Va. 5
Lincoln,	Ill. 5	*Walkerton,	" 27
Liberty,	Mo. 10	York, Liv.	6
*Luray,	Va. 19	York,	Pa. 6

PRICE CURRENT.

ARTICLES.		New-York, Aug. 20.	Boston, Aug. 15.	Philadelphia, Aug. 13.	Baltimore, Aug. 18.
Beans, white,	per bush.	1 25 .. 1 38	1 25 .. 1 37½	1 00 .. 1 12½	1 00 .. 1 25
Beef,	cwt.	7 50 .. 7 75	7 50 .. 7 75	7 00 .. 8 00	7 00 .. 8 25
Bacon, western,	lb.	10 ..	11 ..	10 .. 12½	10 .. 12½
Butter, fresh,	lb.	18 .. 20	16 .. 18	14 .. 16	12 .. 15
Cheese,	lb.	7 .. 9	8 .. 9	9 .. 10	8 .. 10
Cotton, best,	lb.	9½ .. 12½	9 .. 12½	9 .. 12½	9 .. 12½
Flour, bbl.	bbl.	6 62½	7 50 .. 7 75	7 00 .. 7 25	7 00 .. 7 25
Flour, bbl.	bbl.	5 50 .. 5 75	5 50 .. 5 75	5 50 .. 5 75	5 50 .. 5 75
GRAIN—Wheat,	bush.	1 30 .. 1 35	1 30 .. 1 35	1 25 .. 1 30	1 25 .. 1 30
Rye,	bush.	80 .. 85	85 ..	80 .. 85	80 .. 85
Oats,	bush.	37 .. 38	37 .. 38	35 .. 37	35 .. 37
Corn,	bush.	78 ..	70 ..	70 .. 75	70 .. 75
Hams, pork,	lb.	10 .. 12	11 .. 12	10 .. 12	10 .. 12
Pork, in bag,	cwt.	8 00 .. 8 50	8 00 .. 8 50	7 50 .. 8 00	7 50 .. 8 00
Pork, in log,	bush	10 00 .. 11 00	10 00 .. 11 00	10 00 .. 11 00	10 00 .. 11 00
Seeds—Red Clover,	bush	8 00 .. 13 00	8 00 .. 13 00	8 00 .. 12 00	8 00 .. 12 00
Timothy,	bush.	2 62½ .. 3 00	2 62½ .. 3 00	2 50 .. 3 00	2 50 .. 3 00
Saxony fleece	lb.	52 .. 57	53 .. 57	50 .. 55	50 .. 55
Merino,	lb.	48 .. 50	48 .. 50	45 .. 50	45 .. 50
1-4 and com.	lb.	33 .. 38	33 .. 38	33 .. 38	33 .. 38
Wool—Tub,	lb.	32 .. 35	32 .. 35	30 .. 35	30 .. 35
Cows and Calves,	head	30 .. 45	25 00 .. 37 00	20 .. 38	25 00 .. 46 00
Sheep,		3 33 ..	2 ..	2 ..	2 ..